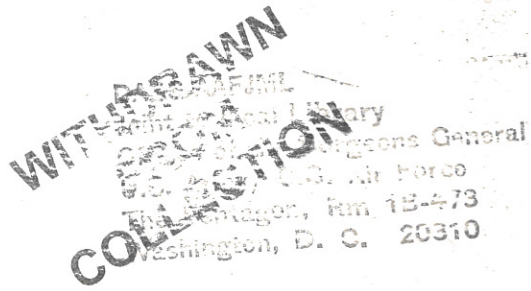

NAVY MEDICAL CARE STUDY
ALTERNATIVES TO
A PHYSICIAN SHORTFALL

Phase III

BY

JOHN J. WAGGONER
MICHAEL RAHM
JOHN H. POWEL, JR.

MARCH 1975

THE CONSULTING DIVISION
BOEING COMPUTER SERVICES, INC.
505 BAKER BOULEVARD
SEATTLE, WASHINGTON 98188

This work was conducted for the Office of Naval Research under our Contract Number N0014-73-C-0341 and our Contract Authority Identification number NRQ462-57.

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The probable magnitude of a shortfall of Navy physicians below programmed strength is analyzed. Alternative methods of providing medical care under shortfall conditions are examined for feasibility. Cost analysis is performed on feasible alternatives.

FOREWORD

This document is part of the final report of The Boeing Computer Services, Inc. (BCS) study titled "Research on the Efficient Delivery of Medical Care in the U. S. Navy." The report summarizes the work accomplished from September 1974 to March 1975 under the contract N-0014-73-C-0341 for the Office of the Chief of Naval Operations under the direction of the Support Forces, Manpower Logistics Branch (OP-964) of the Systems Analysis Division. Further analysis and background information has been reported earlier in Navy Medical Care - Findings and Implications and Costs and Economic Efficiency and the companion volume, Planning and Programming. Navy responsibility for all this work was vested in Dr. A. S. Rhode, Mr. Irwin Schiff who was the project officer.

The Bureau of Medicine and Surgery provided much of the data for this study. They also aided us considerably in understanding the data and the systems we were attempting to analyze. We very much appreciate their cooperation.

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EXECUTIVE SUMMARY

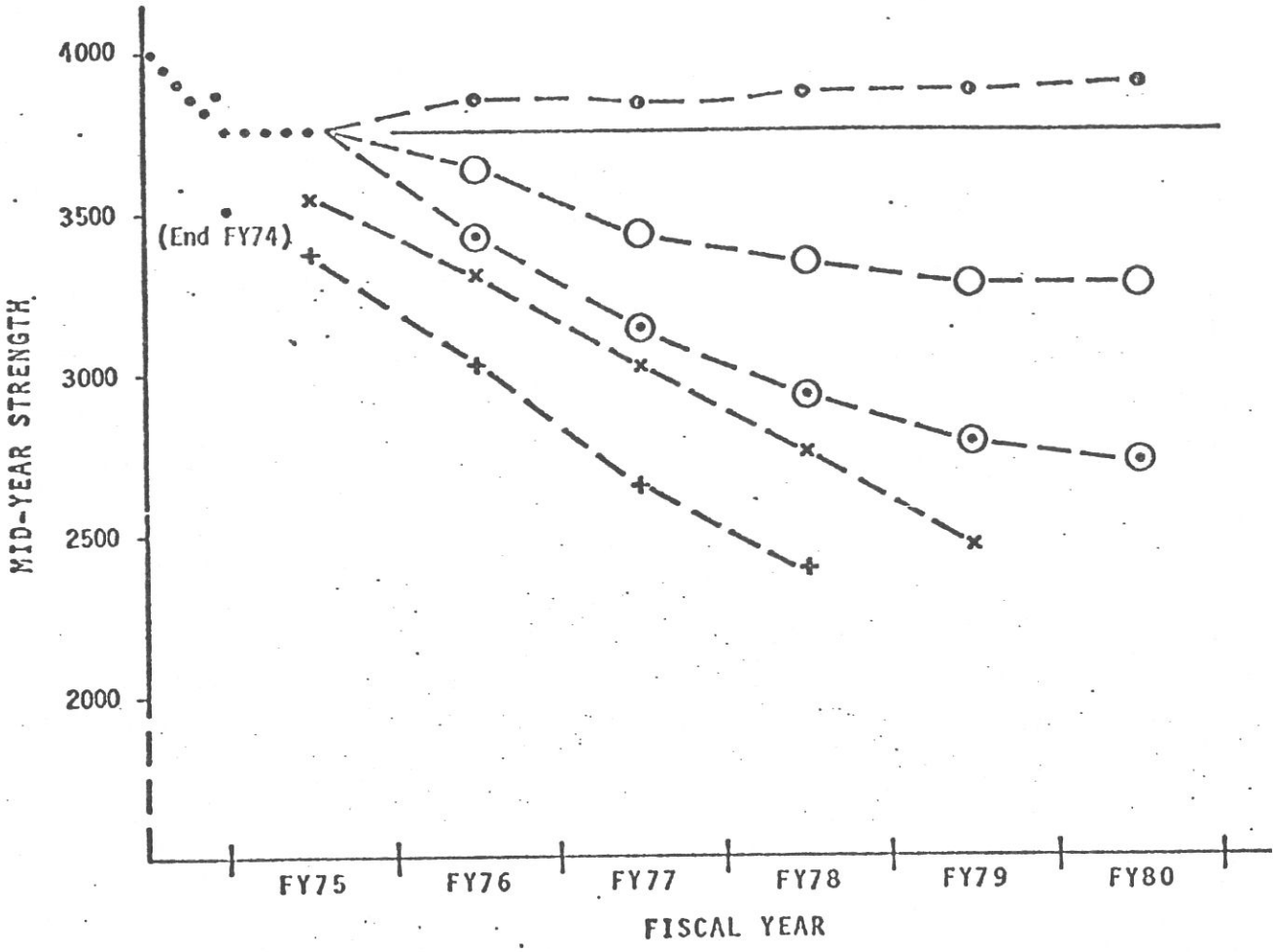
The report summarized here marks the completion by The Consulting Division of Boeing Computer Services, Inc., of the third phase of its study, "Research on the Efficient Delivery of Medical Care in the U. S. Navy", under contract No. N-0014-73-C-0034l for the Systems Analysis Division, Office of the Chief of Naval Operations, directed by Support Forces, Manpower and Logistics Branch (OP-96). The objective of this phase of the study is to determine the feasibility and costs of alternative methods of delivering medical care to Navy beneficiaries in the event that the Navy Medical Corps is unable to maintain physician strength at current levels.

Because of the heavy turnover of Navy physicians during the transition from a draft-based Medical Corps to an All-Volunteer Corps, the Navy may lose more physicians than it can replace over the next four years or so. After that time, scholarship and education programs designed to create a career Medical Corps will enable the Navy Medical Corps to regain its strength. The implications of this process are that, without some augmentation, the Medical Corps may be unable to maintain care for the current Navy beneficiary population at existing levels for a period of several years during the late 1970's. As indicated by Summary Figure 1, there is presently some controversy as to the precise extent of such a shortfall. Nevertheless, it is necessary that the Navy explore the possibility of alternative methods of providing the current level of care.

Alternative modes of health care delivery to Navy beneficiaries fall into two basic categories: "in-house alternatives" and "outservice alternatives". The first category of alternatives would permit the Navy to continue to serve the current beneficiary population within Navy Medical facilities by providing a means of supplementing the professional services of the active duty medical officers. These alternatives include reallocating personnel to reduce the number of physicians not engaged in patient care, increasing the utilization of reservists by requiring Reserve medical officers to perform active duty for training at active duty installations, and the employment of civilian physicians either as full-time civil servants or part-time under contract.

Summary Figure 1

PROJECTIONS OF NAVY MEDICAL CORPS
MID-YEAR STRENGTH



KEY

- Actual Medical Officer Strength, December 1974 - December 1975
- Future Authorized Medical Officer Billets (Approx. 3720)
- December 1974 BuMed Forecast
- December 1974 BuMed Forecast with VIP Rentention Reduced 50% and Recruitment at 70 Per Year
- December 1974 BuMed Forecast Without Any VIP Retention or Recruitment
- June 1974 OASD(H & E) Task Force End-Strength Forecast With 10% Additional Retention Plus Adjustment To Mid-Year Strength
- BuMed Pre-VIP End-Strength Forecast (August, 1974) Adjusted To Mid-Year Strength

The second category of alternatives requires shifting some portion of the medical care of the beneficiary population to the civilian sector. The two principle forms of this alternative are the increased use of CHAMPUS and the enrollment of beneficiaries in private health maintenance organizations (HMO's).

The conclusions of the analysis are that it will be technically difficult, if not impossible, to continue care for the current beneficiary population in-house in the event of a significant decrease in physician strength. Very few physicians presently involved in activities not associated with direct patient care could be usefully transferred to patient care. The number of physician manhours which might be obtained by mobilizing the training and drill time of Reserve physicians is small, and use of those manhours would render them unavailable to the new unit Reserve structure. Employment of civilian physicians appears to be potentially feasible, but because full-time Civil Service physicians would receive lower pay than uniformed physicians, they may be even more difficult to recruit. In addition, employment of these physicians may lead to personnel problems in the out years as the Medical Corps regains its strength. The employment of physicians on part-time contracts was found to be a questionable practice in the eyes of the Civil Service Commission and may not be permissible; even if it were, the study indicates that the appropriate manpower may not be readily available at the right time in the right place and at the right price.

The most viable alternatives technically appear to be those which involve diverting the beneficiary population to the civilian sector during the short-fall period, either through CHAMPUS and/or by enrollment in HMO's (which probably would also be administered through CHAMPUS). Enrollment in CHAMPUS, particularly, has the advantage of being readily reversible as the Medical Corps regains its strength in the early 1980's. The HMO alternative has the advantage of providing a similar level of care to that currently received in Navy facilities at lower government cost and little or no additional cost to the beneficiary (CHAMPUS involves substantial deductibles and co-insurance).

Such enrollment, however, would require enabling legislation; furthermore HMO's currently are not widely established in all parts of the country, and thus would not be available to all Navy beneficiaries.

The results of the cost analysis of the alternatives, phrased in terms of shortfalls of 300 to 500 physicians, are described in Summary Figure 2. Physician replacement costs were based on the work year of the average Navy physician, which indicates that 1.15 Civil Service doctors would be required to replace each Navy physician. The two outservice alternatives were costed on the basis of shifting beneficiaries out of Navy facilities according to their Title X entitlements; that is, dependents of retired and deceased members first, then retirees.

The cost analysis indicates that the most feasible and flexible alternative, CHAMPUS enrollment, is the most costly. Some savings could be realized, however, by combining this alternative with HMO enrollment and some Civil Service employment of physicians. The use of part-time physicians on contract is clearly not indicated, since it is both expensive and only marginally feasible.

Summary Figure 2

Costs in FY1975 Dollars of Alternatives to

Navy Physician Shortfalls of 300 to 500 Physicians

		300 Medical Officers	500 Medical Officers
		(in $ million)	
A.	Current MPN and O&MN Costs of Patient Workloads of 300 to 500 Navy Physicians	$42.5	$70.9
B.	Incremental Costs (Savings) of Alternatives to Care by 300 to 500 Navy Physicians		
	1. Civil Service Replacements:	$ 0.6	$ 1.0
	2. Part-Time Contract Physicians:	$ 7.1	$11.9
	3. CHAMPUS Enrollment of Workload:	$ 8.9	$13.4
	4. HMO Enrollment of Workload (Saving):	($ 2.7)	($ 6.2)

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1.0 INTRODUCTION

The purpose of this report is to examine possible alternative methods of delivering medical care to Navy beneficiaries in the event that the Navy Medical Corps is unable to maintain physician strengths at current levels.

There is considerable evidence that because of the transition from a draft-based Medical Corps to an All-Volunteer Corps, the Navy will lose more physicians than it can replace over the next 4 years or so. After that time, the long-range plans for a career medical corps will clearly assert themselves, and the Medical Corps will regain its strength. In order to determine the precise magnitude of the problem, the first task addressed in the report is an examination of the forecasts of physician strength for the remainder of this decade.

While our analysis indicates that a severe shortage of Navy physicians is not absolutely certain, some shortfall does appear probable. Thus, it is important to determine the feasibility of alternative means of maintaining the medical care of Navy beneficiaries. Several such alternatives are carefully explored in Chapter 3, and some are found to be infeasible: They simply could not generate a sufficient level of care to meet even a small physician shortfall. Of those which remained, the most readily feasible alternative clearly is to shift a substantial proportion of beneficiaries into the CHAMPUS program.

Finally, as described in Chapter 4, a careful cost analysis was performed to determine the expense involved in providing each alternative to the care supplied by 100 Navy doctors. This analysis indicates that the costs can vary considerably among the alternatives, and that one alternative, the enrollment of Navy beneficiaries in civilian Health Maintenance Organizations, could even yield a net saving to the Defense Department.

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Finally, in Appendix A to the report, there is a detailed discussion of a national survey conducted of civilian HMO's to determine their willingness and ability to enroll Navy beneficiaries and the costs of doing so. The survey indicates that a substantial number of Navy beneficiaries could be served by HMO's at quite reasonable cost. An additional Appendix discusses some of the welfare and workload implications of a co-insurance fee for outpatient visits in Navy facilities.

2.0 SHORTAGES OF NAVY PHYSICIANS IN THE 1976-1980 PERIOD: AN ANALYSIS OF THE PROJECTIONS

Before analyzing different methods of meeting a physician shortage, it is necessary first to develop some impression of the magnitude of the problem. Clearly a short-fall of 100 or so physicians presents a substantially different problem from a shortage of 600 or 800 doctors. Although some strain might be evident, the Bureau of Medicine and Surgery (BuMed) probably could continue to serve the present Navy beneficiary population if physician strength were only three to five percent below programmed levels of 3700 to 3750 physicians. If, however, shortages of eight percent or more (over 300 physicians) were to appear for any length of time, the likelihood is greatly increased that some means of supplementing the capabilities of the physician force would be required.

2.1 Early Forecasts of Physician Strength

Since the inception of the all-volunteer system, it has been recognized that the recruitment and retention of medical officers would represent a particularly difficult problem. Because the incomes of physicians in private practice are substantially above military pay scales, a career in military medicine requires considerable financial sacrifice. Indeed, during the years of the doctor draft, only a small fraction of physicians chose the Medical Corps as a career, and many who began that career found they did not desire to remain in the service to retirement. Thus the Medical Corps was characterized by a substantial "floating bottom"; that is, the overwhelming majority of medical officers served the minimum tour required by the draft. Only a small

fraction of these physicians were retained to form the basic cadre of the Medical Corps. Under the all-volunteer system, the Services are developing a career Medical Corps. This is being achieved primarily by underwriting the costs of the training of physicians, either through scholarships or by enrolling students in the Uniformed Services University of Health Sciences, in exchange for a substantial obligated period of service. When residencies and the obligations stemming from these residencies are included, the typical young doctor coming on board will be committed to the Navy for more than ten years. Thus, in the long run it is expected that the Navy will be able to achieve and maintain the programmed strength of its Medical Corps.

In the short term, however, there is a strong possibility that the strength of the Medical Corps will drop substantially below the desired level. This is a direct result of the fact that many of the physicians now serving or coming on board in the next couple of years will be serving out obligations incurred under the draft, or for subsequent training, and are believed not to be oriented toward a military career. The first projections of the strength of the Medical Corps for this interim period of FY1976 to FY1980 were made in the absence of the Variable Incentive Pay program (VIP). Two such projections, arrived at independently, are shown in Figure 1. As can be readily seen, both BuMed and the DOD All-Volunteer Task Force predicted that Navy Medical Corps end strengths would decline to 60 percent or less of desired strength by the late 1970's.* VIP was largely a response to these predictions, being designed both to increase the retention of physicians currently on board and to improve the ability of the Navy to recruit other fully trained physicians and medical students for its scholarship programs.

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* End strengths have typically been below average strength due to the heavy turnover in June and July. If average strengths have been estimated, all figures would be about 300 persons higher.

FIGURE 1

PRE-VIP PHYSICIAN FORECASTS

A. Surgeon General's Forecast

	FY 74	FY75	FY76	FY77	FY78
Requirement Plan	4080	3841	3763	3763	3763
Predicted Losses	1790	1030	1000	900	715
Known Accessions	997	742	710	510	421
On-board End Strength	3340	3052	2752	2362	2068
Short Fall	740	789	1011	1401	1695

Source: VADM D. D. Custis, M.C., "The Survival of Navy Medicine," U. S. Naval Institute Proceeding's August 1974, p. 36

B. All-Volunteer Task Force Forecast:

	FY 74	FY 75	FY 76	FY 77	FY 78	FY 79
Predicted Losses	1846	901	996	800	746	604
Predicted Gains	882	722	672	542	308	251
End-Strength	3302	3123	2799	2541	2103	1750
Shortfall	778	719	964	1222	1660	2003

Source: OASD (H & E) Health Personnel All-Volunteer Task Force, "Table New. 9.7a" (June 1974 update of Table 9.7a, Phase II Report, October, 1973)

Institution of the VIP in the fall of 1974 has considerably altered the gloomy picture painted in Figure 1. Precisely how much the picture has been altered is not yet entirely certain, however. On the basis of a survey of Medical officers in 1973, the All-Volunteer Task Force estimated that the VIP bonus would increase retention by 10 percent or less of those leaving the Medical Corps in a given year. Applying this estimate to their data in Table 1 yields a forecasted end strength for FY1979 of approximately 2160 physicians. Adjusting for the reduction of end strength relative to average physician strength during the year adds approximately 300, implying an average strength of 2460 physicians available during FY1979. This force would be one-third below the desired level. On the other hand, more recent data collected by BuMed seem to indicate that the VIP will yield substantially better results. Indeed, their most recent estimate, as of December, 1974, is that average physician strength will actually rise to slightly above programmed force levels by 1979.

To a substantial degree, the projection of the FY1979 end strength implied by the Task Force Data is outdated because the data base is already two years old. Furthermore, the Task Force figures do not include the recruitment program that has been undertaken by BuMed in the last year or so. This program has had substantial success so far, providing 117 licensed medical doctors to the Navy in calendar 1974. Thus, it is safe to assume that the Task Force projection is probably considerably below the actual force levels which will obtain over the next five years. The BuMed forecast, on the other hand, may be somewhat over optimistic. Both because of this possibility, and because the details of BuMed's forecast provide an excellent illustration of the dimensions of the problem, it will be useful to examine it closely.

2.2 Current BuMed Forecast of Physician Strength

As can be seen in Figure 2, BuMed has estimated the future losses and gains by specific sources. In this way they have been able to isolate the categories of medical officers who will have the most significant impact on the strength of the Medical Corps in the future. The losses specified in the table are predicted on the basis of historical experience -- that is, in the absence of the VIP. For example, the 607 on the Berry Plan expected to be lost in FY1975-1976 are 99 percent of the Berry Planners eligible for release from active duty in that period. Similar calculations with different percentages were made for ment who entered under the Ensign 1915 and Senior Medical Student programs. Resignations and retirements were calculated as absolute numbers based on historical experience, with a declining trend supposed to reflect a decreasing number of men in the pool eligible for resignation or retirement. Attrition is also an absolute number, based on historical experience, and consists of men leaving the service for reasons such as death or poor health. The RAD-after-training category consists of men who have completed obligations incurred for additional training while in the Navy. The volunteer loss category is based on the expectation that as many as 55 percent of the doctors obtained under the recruitment program will depart within two years after satisfying their initial obligation.

Under "Gains By Source", the first four categories consist of men known to be already in the pipeline. As can be seen, a substantial number of men who undertook Berry Plan obligations while the draft was in effect are still to come on board. Interns are men who will come on active duty directly after completing medical school under Navy scholarships. The NADDS category consists of those who will

FIGURE 2

CURRENT BUMED PHYSICIAN FORECASTS
FY1975-80

	FY75	FY76	FY77	FY78	FY79	FY80
Mid-year Strength	3758	3814	3799	3835	3834	3870
Losses by Source	FY75-76	FY76-77	FY77-78	FY78-79	FY79-80	
1. Berry Plan	607	506	350	237	139	
2. Ensign 1915 and SMSP	86	87	35	18	5	
3. Resignations	145	135	125	130	130	
4. Retirements	44	35	35	35	30	
5. Attrition	30	30	30	30	30	
6. RAD after training	64	70	80	80	80	
7. Volunteers	-	-	47	73	73	
Total Loss	978	863	702	603	487	
Gains by Source						
1. Berry Plan	354	240	140	29	7	
2. Ensign 1915/SMSP/MOSP	35	13	-	-	-	
3. Navy Interns	219	204	200	200	200	
4. NADDS	24	99	131	140	107	
5. VIP Retention	250	157	132	98	74	
6. Volunteers	135	135	135	135	135	
Total Gain	1,032	848	738	602	563	

Source: Memorandum, BuMed-46, 3 January 1975, Appendix. Forecasts as of December 1974.

participate in the Navy Active Duty Deferment System, in which medical school graduates will be deferred from one to five years for further out-service training. Forty percent are assumed to come on board directly after a one year out-service internship, while 60 percent will be deferred for residencies of two to four years. Acquisitions in this category begin at a low level, but increase in importance in the out years. The last two sources of gains are what BuMed expects to be the effect of the VIP. Under "VIP Retention" they have listed as gains those who are already counted as losses in the top half of the table but who now will remain in the Navy. Volunteers consist of trained physicians whom BuMed expects to be able to recruit over the next five years.

One of the striking elements of this table is the impact that the draft continues to have on the Medical Corps. Until FY1979, the majority of the Medical Corps losses will consist of men completing obligations incurred either under the draft directly or for training received subsequent to an initial draft obligation. A substantial proportion of the gains in the next two to three years will also consist of men who were obligated during the draft period. It will not be until FY1980 that the Navy Medical Corps will be truely on an all-volunteer basis.

From the point of view of determining future physician strength, however, the most important figures are the predictions for the last two sources of gain. These two categories, VIP Retention and Volunteers, are absolutely vital to maintaining the desired strength. If those men are not retained or recruited, predicted losses would exceed gains by more than 300 per year in the first two fiscal years of the forecast, by an average of 172 per year in the next two years, and by 60 in the last year. The cumulative effect of this annual net loss would be to reduce the strength of the Medical Corps by over 1000, or approximately 1150 physicians below the BuMed prediction for FY1980.

These estimates of the VIP effect thus deserve particularly close attention.

The VIP retention projected by BuMed is at a rate approximately double the estimate made by the All-Volunteer Task Force. In FY1975-1976 BuMed is estimating that more than 25 percent of the 978 doctors who otherwise might be expected to leave will remain as a consequence of the VIP. In later years, the predicted retention percentage drops to the neighborhood of 20 percent if attrition (which is presumed not to be economically motivated) and volunteer losses (which are already inclusive of the VIP effect) are excluded. The question that arises is whether or not BuMed is justified in making this optimistic forecast with respect to VIP retention. It is true that acceptances of VIP contracts are running above acceptances of Co-pay in previous years. In FY1974 there were 960 Co-pay contracts accepted by medical officers not in residency training (some residents were eligible for Co-pay, none are eligible for VIP). As of January, 1975, 1151 medical officers had accepted VIP contracts. However, this figure includes the 117 volunteers recruited in calendar 1974. These men are eligible to collect VIP as soon as they come on board. Thus, the net increase in VIP contracts over Co-pay contracts is actually only about 140. Furthermore, 76 Lieutenants who have signed VIP contracts would not have been eligible for Co-pay, although many of these men are undoubtedly among the volunteers. Thus it would appear that the absolute gain in VIP contracts over Co-pay contracts so far is only about one-half the figure suggested by BuMed for FY1975-1976 VIP retention and much closer to the ten percent rate of retention of those leaving the service suggested by the Task Force.

An additional potential source of concern regarding VIP retention is the large number of partial and one-year contracts signed. Of the

total of 1151 contracts returned by early January, 1975, 331 were partial contracts signed by physicians completing obligations for training. Since these men must remain in the Navy in any event, their career decisions are not really indicated by acceptance of VIP. (The same point, of course, would hold true for many of the men who previously accepted Co-pay.) Of potentially greater concern is the fact that at least 209, or 25 percent, of the 820 full contracts were for only one year. Since a medical officer with less than 20 years for pay receives a bonus which is $1,500 per year smaller for a one-year contract than for a four-year contract, the one-year contracts may indicate some fence-sitting on the part of those who signed them.

Some difficulties may also be encountered in the recruitment program in the out years. While it is true that BuMed recruited 117 volunteers in calendar year 1974, the pool from which this recruitment was achieved was substantially larger than the pool that can be presumed available for recruitment in future years. Initial recruitment was made among the entire population of younger physicians; thereafter, it can be assumed that those who rejected a Naval commission in the first year of the recruitment program will be unlikely to accept one later. Thus, recruitment in future years will be limited to the most recent medical school graduates, and in order to achieve the same total number of recruited volunteers, the Navy will have to have a substantially higher success ratio than it did last year.

A final question regarding BuMed's forecast is the impact of inflation on the value of the VIP. Since the bonus is set in dollars rather than as a percentage, continued rapid increase in the incomes of private physicians would soon erode the current ratio of military to civilian renumeration. For example, a rate of increase of ten percent per year would double the incomes of private physicians in only seven years, and could create enormous difficulties in the retention and recruitment programs.

If this analysis of the predicted VIP effects is correct, then BuMed may be in danger of overestimating their ability to maintain physician strength in the FY1976-1980 period. For example, VIP retention at half the rate BuMed predicts, a decrease in volunteers from 117 in the first year to a rate of 70 per year, and a constant base level of resignations of 145 per year* would yield midyear strength estimates for FY1975-1980 as follows:

FY75	FY76	FY77	FY78	FY79	FY80
3758	3622	3414	3308	3213	3207

The adjustments made in the BuMed estimates were not large; gross losses were hardly changed at all, while gains were diminished by just about 18 percent each year. But because turnover continues to be large in this period, the cumulative effect of assuming relatively small percentage reductions in total gains leads to a Medical Corps which is about 15 percent, or 550 physicians, below programmed strength as the Corps "bottoms out" in FY1979 and FY1980.

This is not to say, of course, that decreases to this strength are inevitable. BuMed is acutely sensitive to the potential problem and will bend every effort to maintain the physician force. But achievement of this goal is by no means guaranteed. Certainly we will know more in the next six months, as the first group of Berry Planners and many of those now able to collect only partial VIP's become eligible for the full bonus. Even more will be known within a year, when the 540 one-year agreements expire. In the meantime, it is certainly necessary to consider alternative means of providing medical care for some proportion of the current beneficiary population should it become necessary.

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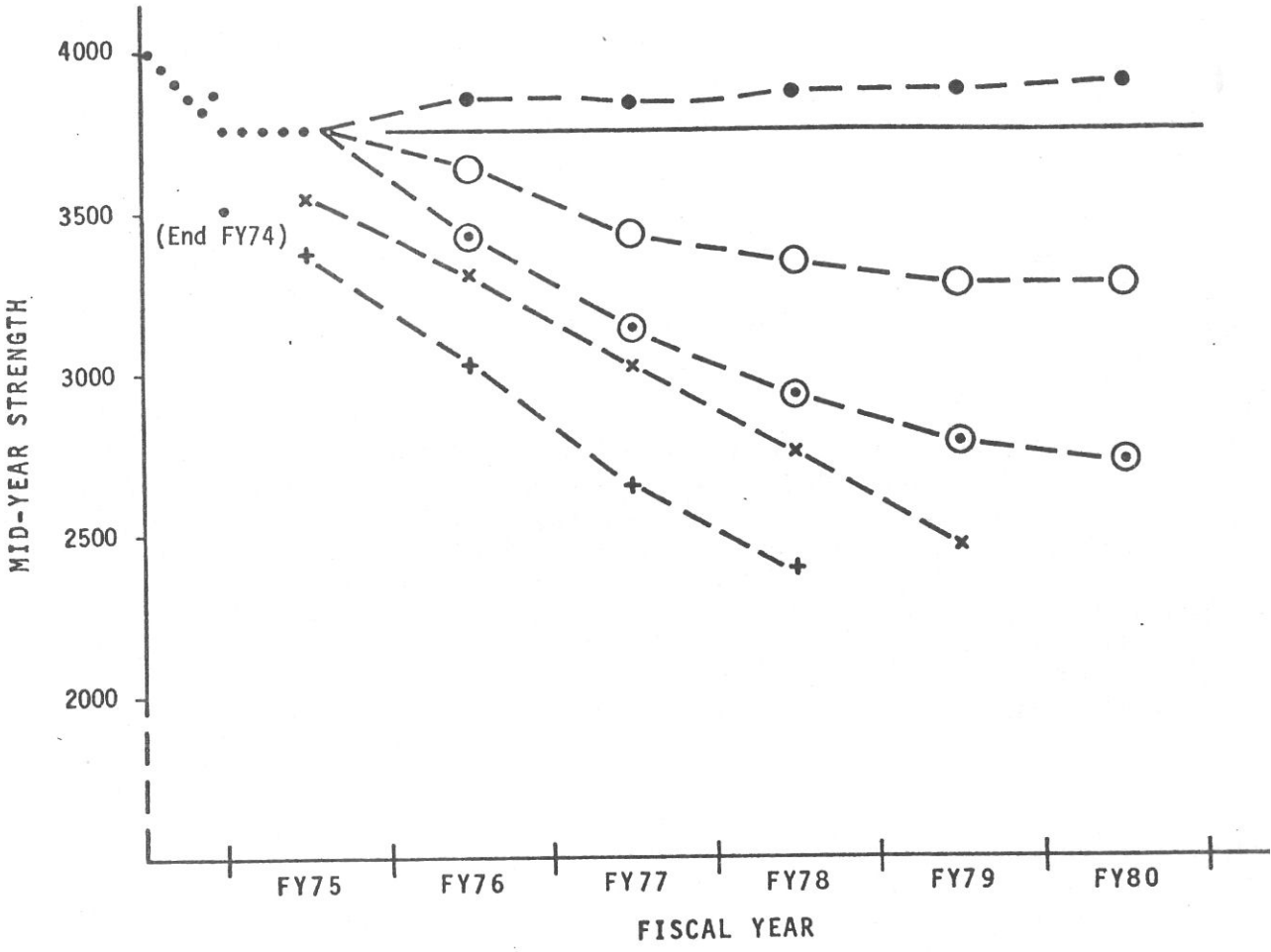
* This adjustment has been made to reflect the fact that with VIP retention, the number of men eligible to resign would be stable or increasing, rather than declining as originally assumed.

FIGURE 3

PROJECTIONS OF NAVY MEDICAL CORPS
MID-YEAR STRENGTH



KEY

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- --+-- BuMed Pre-VIP End-Strength Forecast (August, 1974) Adjusted To Mid-Year Strength

3.0 FEASIBILITY OF ALTERNATIVE METHODS OF MEETING A PHYSICIAN SHORTFALL

The alternative methods of meeting the shortfall considered in this study fall into two main categories. The first group consists of "in-house alternatives", which would permit the Navy to continue to serve the current beneficiary population within Naval Medical facilities by providing a means of supplementing the professional services of the active duty Medical Corps. The first method within this category would involve a reallocation of personnel to reduce the number of physicians not engaged in patient care and thus increase the professional utilization of medical officers. The second method of maintaining care in-house would be to increase the utilization of reservists by requiring a larger number of reserve Medical officers to perform active duty for training at active duty installations. A third method in the in-house category is the employment of civilian physicians in Navy medical facilities. This last includes two possible approaches. The first would be the employment full time of Civil Service physicians, while the second would involve contracting with local civilian physicians to perform specific services in Navy facilities.

The second major category consists of "outservice alternatives". The focus of these alternatives is to shift some fraction of the beneficiary population to the civilian sector. The two principle methods considered under this category are the increased use of CHAMPUS and the enrollment of beneficiaries in private Health Maintenance Organizations (HMO's).

Prior to the initiation of the study, several feasibility criteria were established as the basis for determining whether an alternative

would be useful in meeting the shortfall. These include the following:

1) Estimation of the types and numbers of beneficiaries who could be additionally served by the alternative;
2) Calculation of the measurable workload reduction which might be achieved, including a breakdown by physician man years in inpatient and outpatient care;
3) Examination of other impacts of the alternative, such as its effect on the ability of the Medical Corps to satisfy mission and contingency requirements, on beneficiary health and morale, and on the career development, training and morale of Naval Medical personnel and, finally,
4) Determination of institutional constraints, such as the need for changes in existing Naval policies and directives or special Congressional action.

A fifth feasibility criterion which might have been considered here is cost. However, the objective of this chapter is to determine the technical ability of the Navy to engage in each of the alternatives. The costs of those alternatives that are found to be technically feasible are considered in the following chapter.

In the interests of efficient presentation, the discussion that follows does not attempt to describe in detail the application of each criterion to each of the alternatives. Rather it focuses on those elements of the proposed alternatives which may make them technically infeasible, including some points not specifically mentioned among these criteria. Of the four technical criteria, the most crucial are the first two -- the ability to care for the beneficiary population and the ability to absorb the workload from Navy facilities in the event of a physician shortfall. As the analysis

below reveals, two of the in-house alternatives fail to satisfy the second criterion, while the ability of the third to do so is questionable. The principal conclusion reached is that the two outservice alternatives, or a combination of them, are likely to be the most feasible. Details of the analysis are developed below under the heading of each alternative.

3.1 Personnel Reallocation

As noted above, changes in the present use of medical personnel are unlikely to yeild any substantial increases in patient care. There are three categories of medical personnel who might be diverted from present uses to direct patient care: medical doctors in administrative positions; those currently in research activities; and, those receiving advanced residency training.

BuMed is already in the process of sharply reducing the non-medical use of physicians by eliminating approximately 100 administrative physician positions. By June 30, 1975, this reduction is expected to bring the total of physicians in non-patient oriented activities to 80, of whom 44 will be in the Bureau itself or on Fleet Staff assignments and 36 will command Naval hospitals. Further evaluation may indicate that additional reductions in the administrative use of physicians should be made; but in the view of the possible magnitude of a physician shortfall, this process would, at best, only partially alleviate the problem.

The research category consists of 55 men, of whom approximately 80 percent are in clinically oriented research. However, the skills that these men have developed are not readily translatable to clinical practice, and there is some doubt as to the effectiveness of these men in direct patient care. Furthermore, it is not certain that the Navy could retain these researchers if they were forced into patient

care. An attempt to bring about an increase in health care delivery by use of researchers might simply mean the loss of the research program without any gain in the number of available physicians.

The largest of the three categories are residents receiving training. There are a total of 760 residency positions in the Navy and 185 internships. The interns obviously cannot be diverted from their activity to more complete use as practicing physicians, since they cannot be licensed until the internship is completed. On the other hand, residents might be. Furthermore, the reduction of residency training could conceivably release some of the time presently devoted to teaching by staff physicians at those hospitals sponsoring residency programs.

The possibility of shifting some people out of residency training and into greater direct patient care is potentially counterproductive. First of all, resident training already involves a substantial amount of patient care: one-fourth to three-fourths of a resident's time is spent with patients. Thus the increase to be achieved would not be on a one-for-one basis. More importantly, residency training is a vital part of the Navy Medical program. If residency programs were substantially reduced, a number of the men receiving such training may very well leave the Navy. Indeed, they would be able to leave immediately, since the reduction in the residency positions guaranteed these men would be a breach of contract. In addition, this approach could have a serious impact on future recruiting efforts. One of the great attractions the Navy has to offer young MD's is the opportunity for residency training at higher pay then can be received in civilian life. Finally, and perhaps most importantly, residency programs cannot be turned on and off at will. If the residency program is reduced to a level which the particular specialty board

views as inadequate, the program could be decertified. If the program were completely cancelled, reestablishing the program in the future can take up to two years. Thus, for example, a two-year reduction in a residency program could lead to a four-year gap in that level of residency training. It is also possible that career officers who presently provide residency training would no longer wish to stay in the Navy if the programs in which they were involved were discontinued.

One possible group of 75 to 80 residents mught be shiftable. This group is composed of approximately 50 career officers on outservice residencies, receiving training in medical skills which the Navy cannot provide in-house, and 25 to 30 career officers who are obtaining further sub-specialty training within the Navy in such fields as plastic surgery, rheumatology, cardiovascular disease, and nephrology. All of these men have undertaken their residencies as part of their career plans. Since these men are committed career officers it may be possible to postpone some of this kind of training in order to increase patient care for a few years. However, it must be observed that these career officers are chosen for this training because the skills they will obtain are considered to be valuable to the Navy's long-term medical programs. Thus, at best, postponement of these residencies could only be a very short-term measure.

In summary, it would appear that changes in the current use of personnel are likely to be relatively ineffective in increasing the amount of patient care. The numbers of physicians actually involved in administrative activities is quite small and the total number to be gained by further administrative shuffling is probably in the range of fewer than 30 physicians. While the larger numbers of resident physicians lend themselves to potential increases in direct patient care, the risks involved in terms of recruitment, retention and long run objectives all seem high.

3.2 Use of Medical Corps Reservists

This alternative would involve the use of Medical Corps reservists for direct patient care in Navy Medical facilities during their monthly drill sessions and annual two weeks of active duty for training. Drill sessions and the training period add up to approximately one tenth of a man year per reservist, so that with a coordinated effort the workload of one active duty physician could, in principle, be relieved by 10 reservists.

According to statistics obtained from the Navy Manpower Center in Bainbridge, Maryland, the Navy had 4390 physicians in the Ready Reserve as of November 1974. This group is subdivided into five categories with varying reserve obligations. These are enumerated in Figure 4. There are also 1107 reservists who are student medical officers. This latter group, however, is not at issue for purposes of this analysis.

A substantial number of the ready reservists listed in Figure 4 would not be available for active duty for training or inactive training obligations. The 1883 men in category B/C-31 have no obligation and are listed in the ready reserve largely as a matter of clerical convenience. Effectively, they are in this category awaiting a decision regarding their future reserve status. Those in B/C-32 have a technical ready reserve obligation, but it is doubtful that many of them could be relied upon to provide much assistance in the form of training activity. This is primarily because a substantial number, if not most of these men, are those enrolled in the Berry Plan who have not yet come on active duty and are presently involved in residency programs. The remainder of these 402 men have obligations of uncertain duration -- possibly only a few months.

FIGURE 4

READY RESERVE BY BRANCH AND CLASS

November 1974

B/C	Number	Remarks
31	1883	No valid Ready Reserve agreement or statutory obligation.
32	402	Statutory Reserve obligation remaining.
33	15	Lt. Commanders subject to attrition.
34	631	Finite Ready Reserve Agreement in force.
36	1454	Indefinite Ready Reserve Agreement in force.

SOURCE: Navy Personnel Accounting Machine Installation

The principle categories from which it might be hoped to draw a certain amount of assistance for the active duty Medical Corps are B/C-34 and B/C-36. Even here there are some problems. A substantial number of Berry Planners who have not yet come on active duty who should have been assigned to B/C-32 actually appear in B/C-34 or B/C-36. Since it is known that 822 Berry Plan contracts are still outstanding, the probable number of these Berry Planners lies between 400 and 500. Thus, no more than 1700 reservists are actually potentially available to supplement the active duty corps.

A paid drilling reserve of 1700 physicians might provide a supplemental force equivalent to approxmately 170 physician man years. However there is a strong possibility that many of the men in categories B/C-34 and B/C-36 would resign if required to perform drill consisting of two weeks active duty for training and 48 drill sessions per year. Only 750 of the potentially eligible men in these two B/C categories now drill in the "Selected Reserve". The remainder have no drill obligations, and it is generally believed in BuMed and BuPers that many if not most of these men would leave if obligated to drill. Even among the Selected Reserve, a substantial number presently do not report for two weeks annual active duty. In past years, in fact, as many as one-half applied for and received waivers from their two-week obligations. A further index of this problem is the inability of BuMed to obtain specific supplemental support when sought. In 1974, BuMed requested volunteers to fill more than 300 two-week vacancies during the "Summer Hiatus"; fewer than 50 of these positions were actually staffed. Thus, stricter enforcement of drill obligations for drilling reservists might also yield a poor showing.

Furthermore, assignment of reservist drill periods to regular Navy installations would represent a radical departure from the training

concept associated with this time, and would render these physicians unavailable for medical support (such as physical examinations) to other reserve components. This would prove to be especially awkward at this time, since the Naval reserve presently is engaged in a major restructuring effort which involves the assignment of 950 reserve physicians to specific Medical Reserve units for training and support to other reserve units.* Since contingency plans for these units rely on their ability to respond quickly as an efficiently functioning part of a larger group, the use of Reserve medical officers for active duty support during their training periods could have a deleterious effect on the Reserve program.

In summary, it appears that even if all Reserve drill time were allocated to supplementing the active duty Medical Corps, the yield would be small -- perhaps 100 physician man years. In addition, such an allocation would strip the Reserves of their physicians, a move which may have a serious impact on the new Naval Reserve structure.

3.3 Employment of Civilians in Navy Facilities

This alternative can take two possible approaches, or some combination of both. The first would be to employ full time Civil Service physicians to replace Navy medical officers on a one-for-one basis; the second would be to employ physicians part time under contract in the locality of various Navy installations. The contracts would be for specified services or for a number of hours per week or month in Navy facilities. Each of these approaches has particular characteristics and problems relating to it so that it is useful to consider them separately.

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* Capt. N. V. Cooley, "The Reserve Restructured," U. S. Navy Medicine, November, 1974, pp. 16-18.

In general, the employment of full-time Civil Service physicians is technically feasible, although such employment alone may not be able to fully compensate for a severe shortage of Naval medical officers. The first potential problem associated with this approach is the difficulty which might arise in attempting to reverse it. It is expected that shortfalls in Navy physicians will be of a relatively short duration, perhaps only for two to four years. As additional medical officers come on board, it would be necessary to either lay off the Civil Service physicians or to find some way of absorbing them elsewhere in Civil Service employment. This could prove to be an awkward and difficult process. And, further, the fact that employment in Navy facilities may be of such short duration may make it difficult to recruit any Civil Service physicians at all.

A second potential problem with the employment of civilians is that they would not be as mobile as the uniformed Medical Corps in terms of their movement from one installation to another, and presumably they could not be used in combat situations. Thus, civilian medical officers could prove to have some negative effect on the Navy's ability to meet its contingency requirements.

The most important problem associated with full-time civilians, however, is that they may be very difficult to recruit in any substantial numbers because of the Civil Service pay scale. At present Civil Service physicians are paid on a special rate schedule for grades GS-11 through GS-13, with a large proportion of doctors hired at GS-13 and above. This special schedule is shown in Figure 5. As can be seen, the pay scale is truncated at $36,000, since no Civil Service employee is allowed a base salary above that amount. This means that Civil Service physicians, as they gain experience, quickly fall behind their counterparts in private practice and industry. In fact, it is not uncommon for physicians in industry to earn between $40,000 and

FIGURE 5

SPECIAL GENERAL SCHEDULE PAY SCALE

FOR PHYSICIANS AND MEDICAL OFFICERS

(DECEMBER 1974)

STEPS

Grade	1	2	3	4	5	6	7	8	9	10
GS-11	20,125	20,641	21,157	21,673	22,189	22,705	23,221	23,737	24,253	24,769
GS-12	23,998	24,613	25,228	25,843	26,458	27,073	27,688	28,303	28,918	29,533
GS-13	28,359	29,086	29,813	30,540.	31,267	31,994	32,721	33,448	34,175	34,902
GS-14	31,552	32,405	33,258	34,111	34,964	55,817	36,670*			
GS-15	33,794	34,788	35,782	36,766*						

* Pay cannot exceed $36,000 per year

$50,000 per year. Furthermore, the institution of VIP for military and Public Health Service physicians, has raised their pay for comparable training and experience substantially above the pay of General Schedule physicians.

Although it is not possible to state a precise one-to-one correspondence between General Schedule and military pay grades, the requirements for attaining specific General Schedule and Officer Grades shown in Figure 6 do provide a basis for some comparisons. For example, a married Lieutenant Commander with more than eight years service for pay purposes (or about four years of active duty) earns $33,873 per year in base pay, allowances, special pay and VIP. (See Figure 7.) The approximately equivalent General Schedule physician, a GS13-5, earns $31,267 per year. A married commander with more than 12 years service for pay can earn about $38,400, which is $3,400 per year more than a GS14-5, and $2,400 per year above the Civil Service ceiling. These pay differentials are even larger than they appear, since Civil Service employees must contribute seven percent of their incomes to the Government retirement system. Thus, it appears that if the Navy is unable to recruit trained medical officers directly into uniformed service at current military pay scales it is likely that they would be unable to recruit physicians into Civil Service employment at lower salaries, especially when the superior retirement benefits of the military are considered. Of course, some civilian recruitment still may be possible out of preference on the part of potential recruits for maintaining a civilian status.

The second approach, the employment of part-time contract civilians in Navy medical facilities, has the benefit of reversibility. Contracts for specific services rendered in Navy medical facilities would be of a duration of only a year or so, and would thus permit the Navy to end the relationship when such services were no longer required.

FIGURE 6

COMPARISON OF REQUIREMENTS FOR
CIVIL SERVICE AND NAVY MEDICAL OFFICER PAY GRADES

CIVIL SERVICE GRADE	MINIMUM QUALIFICATIONS	NAVY PHYSICIAN PAY GRADE	MINIMUM QUALIFICATIONS
GS-11	Intership completed		
GS-12	Superior intership, or 1 additional year of residency or "appropriate practice.	Lt. (O-3)	Entry grade for new graduates or those just completing internship
GS-13	Additional year of residency, or "appropriate" practice beyond GS-12 qualifications	LCDR (O-4)	Completion of 4 years active duty beyond medical school (Medical school gives 4 years credit automatically. Credit is given for other civilian training)
GS-14	One more year of appropriate training or practice beyond GS-13 qualification, or eligibility for Board certification	CDR (O-5)	9 years active duty credit or equivalent, beyond medical school.
GS-15	A further year of appropriate training or practice beyond GS-14 qualifications, or Specialty Board Certification	CAPT (O-6)	16 years active duty credit or equivalent, beyond medical school.

Figure 7

MARRIED MEDICAL OFFICER PAY SCALES *

Years of Service For Pay **

Grade	4	6	8	10	12	14	16	18	20	22	26
0-3	29849	30482	30986	31760	32516	32409	--	--	--	--	--
0-4	32984	33236	33873	34888	35792	36062	36829	37340			
0-5	--	--	--	37509	38394	39064	40464	41616	41253	42024	--
0-6	--	--	--	--	40334	40472	43546	44698	44209	45617	46773

* Includes Base Pay, Allowance for quarters, subsistence, special pay and VIP.

** Years of service for pay include 4 years credit for medical school, and may include additional credit for post-graduate training.

Arranging such contracts could prove difficult in many cases, however. The Indian Health Service, a division of the Public Health Service, presently employs a number of part-time physicians under contract. Conversations with officials of the Indian Health Service revealed that negotiation of such contracts is frequently time consuming and that physicians often cannot be obtained. There is also a tendency for some physicians to abuse the contractual arrangements, either by not being present during all of the hours contracted for, or by "running patients through" when being paid for a specific quantity of services. Contract payments also vary considerably, both by specialty and by geographical region.

A further difficulty with this approach is that it may not be permissible under existing Civil Service regulations. In general, the Civil Service Commission is reluctant to allow government agencies to grant contracts for individual personal services. Under their regulations, there are two circumstances under which such contracts are permitted: when the services to be performed are of such a highly specialized and unusual nature as to be unobtainable through normal Civil Service channels, and where the services to be performed are to be performed over a brief period -- usually less than one year. These rules are open to some interpretation and have been treated somewhat flexibly in the past, but the Navy is likely to encounter difficulties in obtaining permission to use part-time contract physicians for two reasons. First, the skills and calendar duration in this situation do not quite fit the limitations imposed by regulations. Second, the Civil Service Commission has already permitted the military to hire physicians directly, outside normal Civil Service employment channels, and has granted them a waiver of the dual pay restriction on the employment of retired medical officers. Without an additional waiver from the Civil Service Commission, the employ-

ment of part-time contract physicians would cease to be a viable alternative, although it is still possible that such a waiver could be obtained.

In summary, it appears that this approach is only marginally feasible due to the uncertainty of being able either to employ the required number of full time physicians during a shortfall period, or to obtain the appropriate quantity and types of contract services. Indeed, the more difficult it is for the Navy to retain or recruit uniformed physicians, the more difficult it is likely to be to employ civilians, especially under the current Civil Service pay ceiling. Nevertheless, a cost analysis of this alternative is provided in the next chapter.

3.4 Increased Use of CHAMPUS

Of all of the alternatives considered for meeting a potential physican shortfall, the increased use of CHAMPUS seems technically most feasible. CHAMPUS already has an administrative structure in place with which to handle beneficiary claims and process required data. In fact, CHAMPUS indicated that an increase in claims processing through CHAMPUS would probably generate economies of scale which would reduce the average cost per claim. Shifting beneficiaries to CHAMPUS temporarily also has the advantage of being a readily reversible process. Non-active-duty beneficiaries currently being cared for in Navy facilities could be diverted to CHAMPUS by the issuance letters of nonavailability when the need arose, and then could be permitted to return to care in Navy facilities when such care became available again.

One potential problem with increasing the use of CHAMPUS is the possibility that civilian medical resources in the locality of major

Navy installations would not be adequate to absorb the additional patient load generated by CHAMPUS recipients. This, however, does not appear to be a significant problem. CHAMPUS beneficiaries have never been refused care because it was unavailable. There are a number of physicians who do not accept the CHAMPUS payment schedule, but this means only that the beneficiary must make up the difference between the physician's fee and the CHAMPUS payment. Furthermore, the majority of larger Naval installations are located in metropolitan areas having an ample supply of physicians. In a recent report, the Health Services Administration of HEW indicated that a useful standard for adequate medical care is an average of one doctor per thousand in the population.* They also provided data on the average number of physicians available per thousand population in metropolitan and non-metropolitan counties by size. These data indicated that only in non-metropolitan counties, as defined by the U. S. Census Bureau, do doctor populations fall below the average of one doctor per thousand. All but six of the Navy installations in the United States are in, or immediately contiguous to, metropolitan counties. The six are: Lemoore, California; Whidby Island, Washington; Patuxent River, Maryland; Key West, Florida; Beaufort, South Carolina; and Camp LeJeune, North Carolina. Since these installations account for a relatively small proportion of the Navy population in the United States, it is doubtful that diversion of beneficiaries to CHAMPUS would create any serious problems, particularly if appropriate account were taken of those few installations in areas which might be potentially underserved.

There is, however, one serious drawback to CHAMPUS which may limit its desirability as an alternative: the provision of medical care to non-active-duty beneficiaries under the CHAMPUS alternative will be

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* Forward Plan for the Health Services Administration, FY1976-1980, pp. 48-52.

more costly to the beneficiary than care in Navy facilities. This is because the CHAMPUS program includes deductibles and co-insurance for outpatient and hospital care. These charges are particularly significant in the case of outpatient care, consisting of a yearly deductible of $50.00 for an individual active duty dependent or retiree, or $100 for two or more, with a 20 percent co-insurance fee for active duty dependents and a 25 percent co-insurance fee for retirees and their dependents. Because of these charges, there is likely to be some negative morale effect associated with requiring large numbers of beneficiaries to enroll in CHAMPUS, particularly when some will continue to receive completely free care at Navy facilities. (See Appendix B.)

3.5 Enrollment in Civilian Health Maintenance Organizations

At present, the Navy provides total medical care for its beneficiaries, treating everything from minor illnesses to major operations, as well as psychiatry care. They also provide "care for the healthy" in the form of pre- and post-natal obstetric care, pediatric care and physical examinations.

To obtain the same range of potential care through CHAMPUS, beneficiaries may have to deal with a number of different medical practitioners and hospitals. A better substitute for the care provided by the Navy system would be a civilian institution which would provide a one-stop source of total health coverage. The Health Maintenance Organization is such an institution.

The objective of these organizations is to provide, for a single monthly charge, total health care for the enrolled family or individual, with particular emphasis on preventive medicine. Thus, Navy

beneficiaries enrolled in these institutions at the Navy's expense would enjoy a level of comprehensive care most closely duplicating what they presently receive in Navy facilities. Furthermore, they would have few, if any, co-insurance fees such as they now are liable for under CHAMPUS.

The alternative has two serious drawbacks, however. The first is that government paid enrollment of military dependents and retirees in civilian HMO's is presently illegal. A bill introduced in Congress last year, House Resolution 14546, would have permitted such enrollment, but it was never reported out of committee and died at the end of the Congressional session. Attempts will be made to reintroduce and pass such legislation in the current session of Congress. However, the ability of such legislation to become law is still open to question. The bill is actively opposed by the American Medical Association and by some insurance companies. At present, primary support for such legislation comes from the HMO's; but strong backing from the Defense Department would undoubtedly increase the chances of passage.

A major limitation to use of this alternative is that it cannot, at present, absorb all of the beneficiaries who might require outservice medical care in the event of a substantial physician shortfall. As part of our study a survey was made of HMO's currently in operation in order to determine their ability and willingness to enroll Navy dependents, retirees, and dependents of the retired. It was found that the majority of HMO's would welcome enrollment by all of these categories (the details of this survey and its results are described in Appendix A). Nevertheless a large proportion of Navy medical facilities are not located near an operational HMO capable of absorbing Navy beneficiaries. Furthermore, even if all non-active-duty beneficiaries were enrolled in HMO's within 30 miles of existing Naval facilities, this enrollment would account only for

the workload of 400 to 500 Navy physicians. Thus, it is quite possible that a large physician shortfall would generate a shift of beneficiaries larger than the ability of existing HMO's to absorb them. And, as the analysis in the previous chapter indicates, it is possible that BuMed will be five to six hundred physicians below strength by the late 1970's. In addition, because HMO's are not distributed evenly with respect to the Navy beneficiary population, the enrollment itself would be quite uneven. That is, beneficiaries could be enrolled in some areas such as the Northeast, but not in others, particularly the Southeast. This implies that the HMO alternative could only be employed in conjunction with another alternative, such as CHAMPUS.

One difficulty with the HMO alternative is that the response of the HMO's polled was not specified in terms of temporary enrollment of Navy beneficiaries. Thus, enrollment of the beneficiary population or some portion of it, might not be as readily accomplished as the survey might indicate, if the HMO's were informed that the enrollees would only be members for two to five years.

3.6 Summary of Feasibility Analysis

In conclusion, it appears that it will be technically difficult, if not impossible, to continue care for the current beneficiary population in-house in the event of a significant decrease in physician strength. Very few physicians presently involved in activities not associated with direct patient care could be usefully transferred to patient care. The number of physician manhours which might be obtained by mobilizing the training and drill time of reserve physicians is small, and use of those manhours would have a serious

impact on other elements of the reserve program. Employment of civilian physicians is potentially feasible, but because of the relatively lower pay of full-time Civil Service physicians, they may be even more difficult to recruit than uniformed medical officers. The employment of physicians on part-time contracts may not be permissable under Civil Service regulations, and even if it were, the appropriate manpower may not be readily available at the right time, in the right place and at the right price.

Thus, the most viable alternatives are those which involve diverting the beneficiary population to the civilian sector during the shortfall period, either through CHAMPUS and/or by enrollment in HMO's (which probably would also be administered through CHAMPUS). The costs of these two alternatives, as well as those of civilian employment are calculated in the next chapter.

4.0 COST ANALYSIS

The purpose of this chapter is to analyze the costs to the Navy of the feasible alternative methods of delivering health care to beneficiaries in the event of a physician shortfall. Because of the uncertainty regarding the absolute size of the shortfall in any given year, and because any shortfall which does occur is likely to vary considerably from year to year, estimates are made in FY1975 dollars of the costs of decreasing the Navy Medical Corps by 100 officers and providing that amount of care by means of a particular alternative. The costs associated with an estimated shortfall of any given size can then be found by simply multiplying the cost per 100 physicians by the ratio of the estimated shortfall to 100.

One might question the ability to estimate costs in this manner, since the net expenditures for an alternative to the care provided by 200 Navy doctors may be larger or smaller than twice the costs of using that alternative to replace 100 doctors. In fact, this problem does occur in one particular instance and is taken account of. But in the most instances, the differences prove to be insignificant in the probable range of any projected shortfall. As shown in Chapter 3 of our previous report (Navy Medical Care Study:Planning and Programming, pp 82-91), the marginal costs of a workload unit in Navy facilities at current levels of care is virtually constant, while outservice care can be purchased at a constant cost per unit for substantial numbers of personnel. Furthermore, this approach has the added advantage of permitting a cost build-up of a combination of alternatives. For example, it may be desirable to calculate the cost of meeting a shortfall of 200 physicians by employing 100 civilians and enrolling the remainder of the patient load in HMO's.

4.1 Costs of Civilian Physicians

Although it was determined that this alternative was likely to be only of marginal value in meeting a shortfall, it is still useful to consider its cost, since it might be employed in conjunction with an outservice alternative. The basic calculation to be performed, therefore, is the cost of replacing 100 Navy medical officers with full-time civil service physicians or part-time contract physicians.

To perform this calculation correctly requires somewhat more than a comparison of the appropriate pay scales from Figures 5 and 7 in Chapter 3, since those salary figures do not include a number of other costs associated with Navy or civilian physicians.

Data for these other cost items were derived from a working paper by the All-Volunteer Task Force, "A Cost Analysis of the Civil Service Alternative To Physician Staffing" (June 1974). This paper shows in detail the additional costs involved, and their derivation. For uniformed physicians, they include such items as: PCS travel, retirement, support costs, dependency and indemnity compensation and educational benefits. * Dollar amounts for these categories by grade, updated to reflect recent pay increases are shown in Figure 8. For the civilian physician, similar additional costs were calculated for the mid-point of each GS-grade and are also included in Figure 8.

As indicated in Figure 8, the full costs of uniformed and civilian

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*The Task Force figures also include an income tax adjustment and an adjustment to the composite standard rate which are not applicable and have therefore been excluded.

FIGURE 8

COSTS ABOVE BASE PAY AND ALLOWANCES OF

Navy Medical Officers and Civil Service Physicians

Grade	Retirement	PCS Travel	Support	Dependency & Indemnity	Educational Benefits	Total
0 - 3	$2,894	$ 404	$ 700	$ 120	$1,191	$5,309
0 - 4	3,526	404	700	174	427	5,231
0 - 5	4,355	404	700	204	78	5,741
0 - 6	5,472	404	700	243	26	6,845

Grade	Retirement	Life Insurance	Health Benefits	Terminal Leave	O & M Support	Workmen's Comp.	Night Differential	Total
GS - 12-5	1,852	$ 80	$ 218	$ 160	218	100	190	$ 2,818
GS - 13-5	2,189	94	218	188	218	118	226	3,251
GS - 14-5	2,447	110	218	220	218	138	---	3,351
GS - 15-5	2,520	134	218	268	218	167	---	3,525

Source: Health Personnel All-Volunteer Task Force, "A Cost Analysis of the Civil Service Alternative to Physician Staffing", Working Paper No. 74-6 June 1, 1974.

physicians are several thousand dollars above the pay scales presented in the previous chapter. For purposes of comparing the costs of civilian replacement it is necessary to make a somewhat more specific comparison, however. The medical officers most likely to be lost are Lieutenants with over 6 years for pay and Lt. Commanders with over 8 years for pay who have just completed all obligated service. Thus the cost of the Navy physicians to be replaced is approximately the average of these two pay grades plus additional costs, or $37,448. An approximate equivalent replacement for these physicians would be a GS-13-5, whose full annual cost would be $34,517.

Comparison of the full costs per physician indicates that there is a net saving in hiring the Civil Service civilian on a one to one replacement basis. But because of the long hours typically recorded by military physicians it would probably not be possible to substitute Civil Service physicians on this basis. According to a recent DOD survey, the average work week of the military physician was 54.3 hours. Since it is doubtful that civilians could be recruited to work similar schedules at a lower salary, it is estimated that 110 to 120 civilian doctors would be required to replace 100 military physicians. Thus, while the total cost of 100 O-3 and O-4 medical officers in FY1975 is $3.74 million, the cost of their civilian replacements would be between $3.78 and $4.12 million, or a net cost of $.04 to $.38 million.

Calculation of the costs of replacing the services of 100 medical officers with part-time contract physicians requires two basic figures: the number of man-hours to be replaced and the cost per hour of such service. Calculation of the hours is straight-forward. The average physician works about 45 weeks per year, when annual leave, holidays, sick leave and travel time are accounted for, and he works 54.3 hours per week according to the DOD survey mentioned above. Multiplication of these two figures yields a physician work-year of 2444 hours.

The cost per hour to replace this time with contract civilians will be highly variable, since each physician would have to be contracted for individually. Inquiries made at the Indian Health Service and several private corporations indicate that hourly rates for part-time physicians presently range between $20 and $30 per hour, depending on the type of physician and the geographic region, and sometimes range up to $40 per hour and more for a few of the scarcer specialties. Thus, at an average of $25 per hour, a physician man-year of contract services would cost the Navy $61,100, and the replacement of 100 medical officers would cost $2.37 million above current costs.

4.2 Costs of Shifting Beneficiaries to CHAMPUS

The basic approach to estimating the costs of the CHAMPUS alternative is somewhat different than the estimation above, since rather than replacing doctors, the alternative consists of removing some portion of the patient load from Navy facilities and transferring it to the CHAMPUS system. What is required therefore is a comparison between the marginal cost to the Navy of the patient load served by 100 medical officers in Navy Medical facilities and the CHAMPUS cost of serving that workload.

The first step in this procedure is to calculate the workload equivalent of 100 Navy physicians. In order to perform this calculation it is necessary to have several items of data. These include the size of the full-time equivalent medical staff at major Navy Medical Facilities in the United States, the number of outpatient visits, and the average daily inpatient load serviced by these physicians. These data for the first three quarters of 1974 are presented in Figure 9.*

* The 4th quarter of FY1974 was excluded because physician numbers are artificially depressed by the June-July turnover.

FIGURE 9

Physician Staffing and Average Patient Loads
Navy Regional Medical Centers and Hospitals in the U. S.
(First Three Quarters, FY1974)

Quarter	Physicians (Quarter End) Staff	Residents	Interns	Average Daily Inpatient Load	Daily Outpatient Average
FY74-1	1,711	621	142	6,912	27,187.4
FY74-2	1,666	605	146	6,542	26,423.4
FY74-3	1,771	647	146	6,752	28,972.6

Source: Structure of Navy Medicine

Calculation of the full time equivalent staff at these Navy facilities was achieved by attributing one half of the workload of a fully trained physician to each resident and intern. This ratio conforms to what is generally believed to be the approximate productivity of residents and interns, and it is also borne out by the statistics. Because residents and interns are not evenly distributed throughout Navy Medical Facilities, it is possible to segregate facilities into two categories -- those which have residents and interns, and those which do not. When the average workload per physician in hospitals without residents and interns is multiplied times the number of full time staff physicians in those facilities which have residents and interns, the remaining workload per resident and intern equals 48.5% of the workload of the full time staff. Thus during these three quarters of 1974 there were an average of 2,101 full-time equivalent physicians in U. S. Navy facilities.

Dividing the number of full-time staff into the average daily patient load and the number of outpatient visits per day over these three quarters yields an average daily productivity per full time physician of 3.21 bed patients and 13.10 outpatient visits. This however, is not a precise enough workload estimate for our purposes. First of all the number of inpatient beddays per physician is overestimated due to the very large number of recorded beddays which are for convalescent care of those on active duty. In fact, only about 68% of the average daily patient load consists of continuous care beddays. If the figure of 3.21 occupied beddays per physician is reduced by this factor, the actual continuous care patient load per physician is 2.19 per day. A similar correction is required for outpatient visits. The utilization rate by the active duty uniformed for outpatient visits is about 2½ times the rate for the comparable age group of males in the civilian population. This implies that much of the care being provided to these active duty patients is of a type that requires a relatively small amount of the

physician's time and expertise; much of it is frequently handled by the enlisted corpsman or by a nurse. Active duty outpatient visits therefore may be equivalent to as little as 1/2 of an outpatient visit by non-active duty personnel; the real outpatient load would be correspondingly overestimated. To obtain a lower limit on the outpatient load, the total number of outpatient visits per physician was reduced by one half of the active duty outpatient visits. This yielded a daily outpatient load per physician of 10.70. Thus, the average daily workload of the full time equivalent physician is calculated to consist of 2.19 continuous care beddays and between 10.70 and 13.10 outpatient visits per day. Corresponding annual workloads per full-time physician are 800 occupied bed days (OBD's) and between 3905 and 4782 outpatient visits (OPV's).

The next step in this procedure is to decrement the Navy's cost by this annual workload per 100 physicians. This can be done by using the cost analysis included in the BCS draft report Navy Medical Care Study: Planning and Programming. In that report it was estimated that the marginal cost of a continuous care bedday was $87.68 in FY1974. This was decomposed into appropriation categories as follows: MPN, $44.04; O&MN, $43.64. The estimated marginal cost of an outpatient visit was $11.25 of which $6.35 was allocated to the MPN budget and $4.90 to O&MN.

Translating these figures into 100 physician equivalents consists of multiplying these cost elements per OBD and OPV by the respective workloads in these categories. This multiplication yields a total cost for occupied beddays for FY74 of $7.01 million, of which $3.52 million is MPN and $3.49 million is O&MN. Outpatient costs range from $4.39 million to $5.48 million, with $2.48 to $3.04 million constituting MPN and $1.91 to $2.34 million, O&MN.

This breakdown of costs into MPN and O&MN components is required in order to bring these FY1974 estimates up to the present, that is FY1975. Each component has to be separately adjusted --the O&MN budget figures for inflation and the MPN figures for pay increases, including the VIP bonus for physicians.

The first calculation is the translation of FY74 MPN dollars into those for FY75. The total estimated MPN decrement for FY74 ranges between $6.0 million and $6.56 million. In FY74 the standard planning factor for an officer was $19,189. Thus if 100 officers were decremented in 1974, this would result in a $1.92 million decrease in the MPN budget. The remaining $4.1 to $4.5 million must therefore be apportioned to other MPN components. It can be assumed that these MPN decrements would be taken entirely from the enlisted ranks. For FY74, the planning factor for enlisted personnel was $8,461 which implies that between 482 and 548 enlisted personnel would have to be decremented to account for the remainder of the MPN decrement. Translating this decrement of 100 medical officers and between 482 and 548 enlisted personnel into the FY1975 MPN budget requires the adjustment of the planning factors for medical officers and enlisted personnel to a 1975 basis, including the introduction of the Variable Incentive Pay for medical officers. The planning factor for enlisted personnel was adjusted by increasing it 5.5% to $8,926. For medical officers, a basic planning factor of $21,514 was used, which reflects both the pay increase and some change in the rank structure. In addition, since all of the officers to be decremented in this case would be VIP-eligible, the approximate average value of the 1151 signed VIP contracts, $11,400, was added to the officers cost. Multiplying this VIP-adjusted planning factor of $32,914 times 100, and the estimated enlisted decrements times their planning factor, yields a total MPN decrement of between $7.59 and $8.18 million.

Adjustment of the operations and maintenance decrement at Navy hospitals consists primarily of accounting for the inflation between FY74 and FY75. Currently the rate of inflation of the cost of medical care in the private economy is averaging 12% per year. Applying this rate of inflation to the FY74 figures yields a range for the FY75 O&MN budget of between $6.05 million and $6.53 million. Thus the total cost decrement for the work load of 100 physicians in FY75 ranges between $13.64 and $14.71 million.

The final step in the calculation is to compute the costs to the Department of Defense of shifting this caseload to CHAMPUS. This calculation is actually two phased, because non-active duty beneficiaries must be shifted to CHAMPUS in accordance with Title X entitlements. That is, the dependents of the retired and deceased must be shifted first, then retired uniformed personnel. It is necessary, therefore, to calculate the workload shift as if all of those shifted are dependents of retired and deceased up until the point at which these beneficiaries have all been shifted to CHAMPUS, and then begin shifting the workload generated by retired personnel. This leads to a break in the cost figures, because the dependents of retired and deceased have somewhat lower costs per outpatient visit and occupied bedday, in the CHAMPUS program. At present utilization rates the dependents of retired and deceased would all be shifted at a decrement of between 267 and 302 physicians depending on the productivity estimates. At that point retirees would begin to be shifted to CHAMPUS and would all be shifted at between 500 and 566 physicians. Since these higher figures approach the likely upper limit of the physician decrement, we have made calculations for CHAMPUS costs based on these two groups only. Nevertheless, the data in Table 10 would permit the computation of CHAMPUS costs were the physician shortfall to go above 550 or so.

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THE CONSULTING DIVISION
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Figure 10

Average CHAMPUS Costs, FY 1974

INPATIENT COSTS

Dependents of Active Duty

With medical NP — **$130/day**, **$890/admission**

Without medical NP

Government expenses	**$58,571,417**	
Days	**329,552**	**$177/day**
Admissions	**77,456**	**$756 /admission**

ALOS - 4.3 days

Retirees

With medical NP — **$91/day**, **$794/admission**

Without medical NP

Government expenses	**$10,410,615**	
Days	**101,437**	**$103/day**
Admissions	**12,835**	**$811/admission**

ALOS - 7.9 days

Dependent R & D

With medical NP — **$73.37/day**, **$776/admission**

Without medical NP

Government expenses	**$25,917,236**	
Days	**257,915**	**$100/day**
Admissions	**39,187**	**$661 / admission**

ALOS - 6.6 days

Source: CHAMPUS document M739D for CY1973

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Figure 10
(Cont.)

Outpatient Costs

	Average Cost
Dependents of Active Duty	**$19.57**
Cost of claims @	
2.1 claims/visit	**2.85**
Drugs*	**1.83**
Total	**$24.25**
Retirees	**$20.70**
Claims Cost @	
1.8 claim/visit	**3.33**
Drugs	**1.83**
Total	**$25.86**
Dependent R & D	**17.77**
Claims Cost @	
2.1 claims/visit	**2.85**
Drugs	**1.83**
Total	**$22.45**

* In FY'74 Navy drug cost = $1,019,369
÷Total OPV - all purposes 55,990
= $1.83

Source: Phaseback Data FY 1974
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Table 10 provides the data on CHAMPUS costs needed to determine the cost of servicing the decremented workload through CHAMPUS. These data are basically for fiscal year 1974, and therefore will have to be adjusted to account for the effect of inflation. As noted above the first decrement of the workload of between 267 and 302 physicians would fall entirely among the dependents of retired and deceased. Their average fiscal year 1974 CHAMPUS costs were $103 per hospital day and $22.45 per outpatient visit, including the costs of processing the claim. Multiplying these figures times the workload decrements per 100 physicians yield CHAMPUS costs for the dependents of retired and deceased of $16.76 million to $18.73 million. These figures need further adjustment, however because of the impact of CHAMPUS co-insurance features on the utilization rates of the individuals transferred. Other studies have shown that the 25% of CHAMPUS coinsurance on outpatient care for the retired and the dependents of the retired and deceased would tend to reduce their demand for such care by about 25%. (Navy Medical Care Study, December 1973, Appendix C.) This means that CHAMPUS outpatient cost figures must be reduced by approximately that amount. This adjustment yields a CHAMPUS cost estimate of $14.57 to $16.05 million. Finally, adjustment is necessary to capture the effect of inflation. For medical care, this has averaged about 12% over the last year, which raises the estimates to a FY75 basis of $16.32 to $17.98 million in CHAMPUS costs to absorb the workload of 100 physicians up to a shortfall of between 267 and 302 medical officers.

Beyond that point the dependents of the retired and deceased all would be in the CHAMPUS program and it would then be necessary to enroll retirees. The costs for retirees from Figure 9 are $103 per OBD and $25.86 per OPV. Multiplication of these figures times the workload per 100 physicians yields amounts ranging between $18.34 million and $20.60 million. Again, these figures have to be adjusted by the fact that these

individuals will tend to reduce their rate of outpatient utilization by 25%, decreasing the totals to $15.81 to $17.51 million. There is also a further adjustment needed for the retired population. Retired personnel who are eligible for Medicare and Medicaid are not eligible for CHAMPUS, implying that retired individuals over the age of 65 would not go into the CHAMPUS program. Data available from at least one Naval hospital, San Diego, indicates that 12% of the retired population are over age 65. Thus, these figures must be additionally decremented by 12%. Finally, they must also be adjusted for 12% inflation. After making these two adjustments, the final cost range for enrolling the retiree work load of 100 medical officers in CHAMPUS is $15.58 to $17.26 million.

There is, finally, one further adjustment which should be made to these figures, but for which no data are available. All of the retirees and dependents of retired and deceased must pay annual deductibles on their claims to CHAMPUS. For those who have made claims, these deductibles are included in calculating the average cost figures used above. However, many CHAMPUS eligibles never exceed the deductible and thus do not apply. As a result, the average CHAMPUS claim overstates the average cost of the workload shifted, since many outpatient visits which have a zero CHAMPUS cost are not recorded. Unfortunately, there is no immediate way to measure this effect, and so the figures given above must be used as upper bound calculations.

To conclude this section, it will be useful to review the calculations. First it was found that the workload per 100 full time medical officers is currently 800 continuous care bed days and between 3905 and 4782 outpatient visits per year. The FY1975 government cost of this care was calculated to be between $13.64 million and $14.71 million. Shifting this workload to CHAMPUS would cost between $16.32 and $17.98 million per 100 physicians as the dependents of the deceased and retired are shifted. At a shortfall level of between 267 and 302 medical

officers, retired uniformed would begin to be shifted, and CHAMPUS costs for a 100 physician workload would drop to between $15.58 and $17.26 million. Thus the net cost of shifting the workload of 100 physicians would be between $2.68 and $3.27 million initially, and then would decline to between $1.94 and $2.55 million.

4.3 Costs of HMO Enrollment

The basic approach of this program is to enroll beneficiaries who can no longer be provided care in Navy facilities in established Health Maintenance Organizations. Presumably this would be accomplished under the aegis of CHAMPUS as an alternative to standard CHAMPUS enrollment. As noted in Chapter 3.0 above, HMO's are not sufficiently widespread to make this a feasible alternative for all of the beneficiary population. Nevertheless, it would be highly beneficial to those who could be enrolled, since they would have much lower out-of-pocket costs than CHAMPUS enrollees.

The current cost of HMO enrollment was determined from a survey of HMO's conducted in October and November of 1974. The survey is explained in detail in Appendix A. It indicates that enrollment of Navy beneficiaries would generally be welcome, and that the average annual enrollment cost (weighted by the distribution of the Navy beneficiary population) would be $234 per person for a schedule of benefits similar to the CHAMPUS package.

Translating this cost onto a basis directly comparable to the calculations performed in Section 4.1 and 4.2 requires converting the workload to be shifted into numbers of HMO enrollees. Unfortunately, this is somewhat difficult to do accurately due to a serious flaw in the utilization figures for the two groups most likely to be affected by a physician shortfall: retirees and the dependents of the retired and deceased.

Currently available data show the total populations of these two groups and the numbers of their occupied bed days and outpatient visits in Navy facilities or reported to CHAMPUS. However, CHAMPUS care is under-reported because of the effect of the deductible, and there are undoubtedly some people in these populations who do not use Navy facilities or CHAMPUS at all.

As a result, total utilization is under-reported, and if known utilization is used to translate the workload to be shifted out of Navy facilities into a number of HMO enrollees, the enrollee figure obtained will be too high.

Nevertheless, it is possible to make some calculations which at least provide a solid basis for comparison. In Tables 2-1 to 2-8 of the BCS study report Navy Medical Care Study: Planning and Programming, estimates are made of the reported utilization of the Navy and CHAMPUS in FY1974 for inpatient and outpatient care by the retired and dependents of the retired and deceased. These are as follows:

	OBD/person	OPV/person
Retired	1.456/year	3.318/year
Dependent/R&D	1.424/year	3.095/year

If these rates are multiplied times the respective FY1974 CHAMPUS costs of providing this care, it can be seen that in FY1974 the cost per retiree would have been $235 per year enrolled in CHAMPUS, while the costs for a dependent/R&D would have been $212. Multiplying these figures by 1.12 to bring them up to a present cost basis yields estimates of $264 and $237, both of which figures are in excess of the HMO annual fee of $234. Thus, we can accept flatly that HMO enrollment is cheaper than CHAMPUS even when utilization is underestimated. The question which arises, therefore is how much cheaper is HMO enrollment if utilization is correctly measured.

Comparison of the utilization rates of these two populations to the utilization of inpatient and outpatient care by the civilian population aged 45 to 64 reveals that the inpatient figure probably is not underestimated by any significant amount, but that the outpatient figure is.* This is not surprising, since there is a much smaller likelihood that non-government-paid care will be sought for hospitalization, or that such care would not be reported due to the CHAMPUS deductible.

To estimate an appropriate outpatient unit rate for these two beneficiary groups, a comparison was made with the outpatient utilization rates of enrollees in a private HMO (the Stanford Group Health Plan). This group was chosen on the grounds that they would be more similar to Navy beneficiaries in their use of health care facilities than the general populace who must pay for each doctor visit. This group also provides estimates consistent with the CHAMPUS cost calculation, since members are charged a 25 percent co-insurance fee for outpatient care.

Male members of this plan aged 45 to 64 had an average visit rate of 4.9 visits per year in 1968. Females in the same age group had a visit rate of 6.0, while females aged 25 to 44 had an annual visit rate of 5.3 Since Navy retirees are predominately males in this age group, the 4.9 OPV/year figure is undoubtedly an excellent estimate of true utilization under CHAMPUS conditions. Most of the dependents of retired and deceased are probably females in this age group or slightly younger. Thus an average of the two female rates above, or 5.65 visits per year is a good estimate of dependent/R&D utilization.

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* See Navy Medical Care Study (December, 1973), Appendix E.

Applying these outpatient utilization rates to CHAMPUS costs raises the price of CHAMPUS care in FY1975 to $310 per year for retirees and $302 per year for dependents/R&D. This implies, finally, that when full utilization is accounted for, HMO enrollment costs are 75.5 percent of CHAMPUS costs for retirees and 77.5 percent of CHAMPUS costs for dependents/R&D. Translating these percentages into the dollar amounts from the previous section yields a gross cost of enrolling a 100 physician workload of dependents of the deceased and retired of between $12.65 and $13.93 million, while the retired workload per 100 physicians would cost between $11.76 and $13.03 million. The lower figure for retirees, it will be remembered, is due to a shift of 12 percent to Medicare.

These figures indicate that enrollment in HMO's would save the Department of Defense between $.8 and $1.9 million per 100 physicians per year. This result may seem paradoxical, but it must be borne in mind that part of this saving is accomplished by shifting a portion of the population to another government program, Medicare.

4.4 Summary of the Cost Analysis

The results of this analysis are summarized in Figure 11. As will be readily seen, the most readily feasible alternative to meeting a physician shortfall is also the most expensive. The substantial advantages of HMO enrollment are particularly of interest, since this would, in many ways, provide the care most similar to that provided in Navy facilities at least cost to the beneficiary population. Unfortunately, total enrollment of the potentially affected beneficiary population is not feasible due to the differences in the geographical distribution of the HMO's and Navy beneficiaries. Furthermore, special legislation would be required to enact such a program.

Figure 11

Summary of FY1975 Costs per
100 Medical Officers of Shortfall Alternatives

1. Civilian Employment	
Direct Cost of 100 Medical Officers (Average of O-3 and O-4):	$3.74 million
Direct Cost 110 to 120 Civil Service Replacements (Average GS-13-5)	$3.78 to $4.12 million
Direct Cost 100 Full-Time Equivalent Contract Physicians (@ 2444 hour/manyear):	$6.11 million
Net Costs:	
Civil Service Physicians:	$.04 to $.38 million
Contract Physicians:	$2.37 million
2. CHAMPUS	
DOD Cost of Current Workload of 100 Medical Officers:	$13.64 to $14.71 million
CHAMPUS Cost of Equivalent Workload Consisting of Dependents Retired and Deceased	$16.32 to $17.98 million
CHAMPUS Cost of Equivalent Workload Consisting of Retired Uniformed	$15.58 to $17.26 million
Net Costs:	
CHAMPUS for Dependents/R&D:	$2.68 to $3.27 million
CHAMPUS for Retirees:	$1.94 to $2.55 million

Figure 11
(Cont.)

3. HMO Enrollment

DOD Cost of Current Workload of 100 Medical Officers:	$13.64 to $14.71 Million
HMO Cost of Equivalent Workload Consisting of Dependents of Retired and Deceased	$12.65 to $13.93 million
HMO Cost of Equivalent Workload Consisting of Retired Uniformed	$11.76 to $13.03 million
Net Costs (Savings):	
Dependents Retired and Deceased:	$ .99 to $ .78 million
Retired:	$1.88 to $1.69 million

APPENDIX A
HMO Feasibility Survey

1.0 INTRODUCTION

1.1 The Need for a Questionnaire

One of the alternatives proposed to augment the medical care available to Navy beneficiaries outside Navy Medical Facilities (NMF's) is the enrollment of substantial numbers of dependents and retired personnel in the Health Maintenance Organizations (HMO's). Questions immediately raised by this alternative are: (1) What is the geographic proximity to Navy beneficiary populations of currently existing HMO's? (2) Are the HMO's able and willing to enroll Navy beneficiaries? (3) How comparable is the care offered by HMO's to that offered through CHAMPUS and through Navy Medical facilities? (4) What are the expected enrollment costs? Each of these questions has several ramifications. For example, the enrollment question cannot be answered in a general way because the three major groups in the beneficiary populations are quite different. Active duty dependents are apt to be younger and more mobile than retired personnel. Similarly, questions of coverage cannot be answered in a simple or general manner.

In order to address these questions adequately, a questionnaire approach was chosen. In addition, the problem of matching populations served by NMF's to enrollments available in HMO's required a case-by-case approach, at least for HMO's located near NMF's. The case-by-case requirement led to adoption of a 100 percent sample of organizations known or thought to be HMO's.

A description of the questionnaire and the sample is contained in Section 2.0 below. A total of 414 questionnaires were mailed to health care delivery organizations which were known or thought to be Health Maintenance Organizations. The organizations are located in

almost every state, though a disproportionate number of them (25 percent) are located in California. The response rate was exceptional by any standards for survey data. The following is a brief tally of the response experience:

Total Questionnaires	414	100%
Returned Questionnaires	196	47.3%
Unreturned Questionnaires	201	48.6%
Questionnaires Returned Undelivered	17	4.1%

The fact that the mailing list comprised a 100 percent sample makes this response rate even more impressive. A detailed discussion of questionnaire response patterns is contained in Section 3.0 below, Section 4.0 contains a tabulation and analysis of questionnaire responses on a question by question basis.

1.2 Summary of Results

Based on (1) the enrollment availability as reported by responsive questionnaires, and (2) beneficiary population estimates derived from inpatient utilization data reported in Navy Medical Facilities, a potential enrollment estimate was made. The estimation procedure is summarized here; details for respective NMF's are described in Section 5.0 below.

First, inpatient utilization data reported in NMF's were used to make estimates of Navy beneficiary populations served by Navy Medical Facilities in a given area. The estimates were made by dividing total inpatient utilization at the NMF's (average daily patient load/1000 beneficiaries) by the NMF utilization rate reported in FY1973 for the respective beneficiary group.

Second, enrollment estimates for each population were compared with the enrollment ceilings reported by the HMO's within 30 miles of the Navy Medical Facility in question, and by the HMO's at greater distances. The latter group was included as a "residual capability".

The residual capability was identified for two reasons. First, it is possible that the beneficiaries actually lived greater than 30 miles from the Navy Medical Facility and therefore may have access to these residual HMO's. Second, the presence of these HMO's may constitute an important resource which could be expanded geographically in the event that HMO substitution were actually allowed by the appropriate CHAMPUS legislation. In comparing population estimates with available enrollment places, qualitative data reported by HMO's (such as willingness to accept certain specific populations) were taken into account together with reported enrollment ceilings. As a result of these calculations, approximately 419,000 non-active duty Naval beneficiaries who could be served by HMO's located less than 30 miles from Navy Medical Facilities were identified; another 190,000 could be served by HMO's located farther away (the "residual capability mentioned above).

Workload reductions which could be expected from enrolling these populations in HMO's were then estimated. This calculation simply consists of multiplying the potential enrollment estimates by utilization rates in NMF's for the respective populations. The potential enrollment in HMO's within 30 miles of Navy Medical Facilities translates into annual inpatient bed days at NMF of approximately 538,717; potential enrollments at the more distant HMO's could account for an average daily inpatient load of approximately 243,245. Corresponding outpatient figures are 1,664,416 visits per year and 751,562 visits per year, respectively. A step by step description of these calculations is contained in Section 5.5.

Physician manning level reductions were estimated by dividing workload estimates by physician productivity ratios for inpatient and outpatient care. Two alternative estimates of physician productivity (output per man) were obtained. The higher of the two was based on

Navy composite workload workload figures, and the other was based on actual productivity data for FY1973. (Derivation of the estimates is discussed in Section 5.5.) Based on these alternative physician productivity estimates, the range of corresponding physician reduction estimates is:

	Reduction in Physician Staffing From Transferring Non-ACDU Personnel to HMO's		
Physician Productivity of Utilization in NMF	HMO's within 30 Miles of NMF	HMO's over 30 Miles from NMF	Total
high productivity	405	180	585
low productivity	506	226	732

Using a weighted average of the enrollment costs for 1974 reported by the responding HMO plans, the per capita enrollment costs would be around $234. Combining this figure with the estimated enrollment potentials, the total cost of enrollment in plans within 30 miles of Navy Medical Facilities would be about $96.6 million. Enrollments in the "residual capability" would add another $44.3 million.

2.0 HMO ENROLLMENT FEASIBILITY QUESTIONNAIRE

2.1 The Questionnaire

Appendix Exhibit 1 contains an example of the questionnaire which was mailed out to Health Maintenance Organizations and the covering letter that accompanied it. Questions were grouped in four categories. The first three categories concerned details of the plan (enrollment policy, coverage, and costs) and the last category concerned possibility of participation in a pilot Armed Forces Support HMO system. The latter question was included in anticipation of the possibility that experimentation with the HMO option might at some point be considered by the Navy. It was felt that even if the military preparedness constraint were effective at a level which would make civilian HMO substitution non-feasible, it might be of interest to examine feasibility of applying the economic principles of HMO operation within the Navy medical system.

Questions related to plan characteristics differentiated among active duty, retired, and dependent personnel. Enrollment limits were specified in increments of 500. Coverage differences were discussed with references to CHAMPUS, and plans were asked to identify their coverage options only to the extent that they were substantially different from CHAMPUS. In the event that plan coverage was different, plans were asked to indicate (1) their willingness to negotiate coverage similar to CHAMPUS and (2) the expected range in the cost differential for negotiating such coverage. Enrollment costs were requested on an individual basis by family status. Also, copayment and deductible aspects of pricing policy were requested.

2.2 The Sample

A list of all organizations known or thought to be Health Maintenance Organizations was obtained from the Group Health Association of America (Washington, D.C.). The list was prepared under contract by

InterStudy, 123 East Grant Street, Minneapolis, Minnesota (55403). The list classifies plans by State and operational status and was selected as the basis of the feasibility questionnaire sample. Even though not all of the plans are located within 30 miles of existing Navy Medical Facilities, it was decided to use a 100 percent sample for three reasons. First, the marginal cost of doing so was relatively small. Second, the availability of plans in a given state located more than 30 miles from the nearest Navy Medical Facility might none the less be considered a residual resource which would be available to Navy beneficiaries living more than 30 miles from the Navy facilities and also a resource which might be expanded should the Navy ever actively solicit enrollments closer to the Navy facilities. Third, the distribution of retired personnel and their dependents throughout the country is not necessarily the same as the distribution of active duty personnel and their dependents. Should enabling legislation allowing use of HMO's under CHAMPUS ever succeed, this information would be of considerable value.

In all, 414 organizations were mailed questionnaires. Figure A-1 shows the distribution of plans by state. The top five states in terms of numbers of plans are: California (140), New York (22), Illinois (17), Pennsylvania (16), and Minnesota (14).

FIGURE A-1

Alabama	2	Missouri	9
Alaska	1	Montana	0
Arizona	8	Nebraska	3
Arkansas	1	Nevada	2
California	140	New Hampshire	2
Colorado	9	New Jersey	8
Connecticut	7	New Mexico	3
Delaware	0	New York	22
Dist. of Columbia	6	North Carolina	6
Florida	7	North Dakota	2
Georgia	1	Ohio	9
Hawaii	9	Oklahoma	2
Idaho	0	Oregon	5
Illinois	17	Pennsylvania	16
Indiana	4	Rhode Island	4
Iowa	2	South Carolina	3
Kansas	3	South Dakota	0
Kentucky	7	Tennessee	4
Louisiana	2	Texas	6
Maine	3	Utah	5
Maryland	12	Vermont	1
Massachusetts	5	Virginia	4
Michigan	9	Washington	6
Minnesota	14	West Virginia	9
Mississippi	3	Wisconsin	9
		Wyoming	2
TOTAL U.S.	414		

APPENDIX EXHIBIT 1

HMO QUESTIONNAIRE AND COVERING LETTER

BCS BOEING COMPUTER SERVICES, INC
THE CONSULTING DIVISION
505 BAKER BOULEVARD, SEATTLE, WASHINGTON 98188
(206) 773-1141

September 30, 1974

Chief Executive Director
Group Health Planning of Greater
Philadelphia
Philadelphia, Pennsylvania

Dear Sir:

As you may know, the Department of Defense has now shifted to the all volunteer concept. This change has dramatically impacted the ability of all service branches to recruit technically skilled and highly trained personnel, particularly doctors. In fact, one of the most crucial questions facing DOD today is how to fill the expected shortfall of medical personnel. One alternative under consideration is the widespread use of civilian health maintenance organizations/prepaid group practices for providing care to Navy beneficiary populations. This option is being discussed with reference to various possible beneficiary groups, ranging from dependents and retired personnel to some active duty categories.

The Navy Department has retained The Consulting Division of Boeing Computer Services to study economic aspects of utilizing HMO/PGP plans, among other alternatives. As part of this effort, we are attempting to answer several questions related to (1) the availability of enrollment space in currently operational HMO plans for both active duty and other Navy populations, (2) the limits of coverage offered by various plans, including the possibility of negotiating coverage equivalent to that provided by the DOD insurance intermediary, CHAMPUS, (3) relevant cost data, both enrollment costs and estimated administrative costs where the unique nature of the relationship between civilian HMO's and Navy beneficiaries (particularly active duty) would require it, (4) the availability of transfer and reciprocity privileges among feasible plans considered for Navy support, and (5) the willingness of plan managers to participate in establishing a special armed forces support HMO system.

In order to provide the Navy with pertinent information on these issues, we have prepared the enclosed list of questions. We ask your cooperation in answering these questions from the point of view of your plan. The questions address four specific areas: enrollment, coverage, costs, and willingness to participate in a pilot HMO project established specifically for Armed Forces personnel.

BCS BOEING COMPUTER SERVICES, INC.

This information is urgently needed. If you are able to provide a response to the questionnaire, a response within the next three weeks would be greatly appreciated. If you do not intend to respond, we ask you to return the questionnaire - as is - in the enclosed mailer immediately. In either case, we thank you very much for your cooperation.

Sincerely,

John H. Powel, Jr.
Managing Consultant

JHP:jc

Enclosure

BCS BOEING COMPUTER SERVICES, INC
THE CONSULTING DIVISION
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(206) 773-1141

HMO SERVICE AVAILABILITY QUESTIONNAIRE

Your assistance has been solicited to determine the availability of health care services in health maintenance organizations/prepaid group practices for Navy personnel. The following questions are grouped in four categories. The first three categories concern details of your plan (enrollment policy, coverage and costs) and the last question concerns the possibility of participating in a pilot project to establish an HMO designed to serve Armed Forces personnel. You are asked to respond to the questions from the point of view of your organizations planned policies and activities, over the next 1 to 2 years. The questions should not be considered commitments on the part of you or your organization. All responses will be treated as hypothetical estimates. Thank you very much in advance for your assistance.

I. ENROLLMENT POLICY

1. How likely is it that your plan could extend enrollment privileges (if solicited) to any of the following Navy beneficiary populations under your organization's current coverage and fee structure.

   (a) Active Duty Navy personnel?

   Very likely____Possible____Very Unlikely____

   (b) Retired Personnel?

   Very likely____Possible____Very Unlikely____

   (c) Dependents of all Personnel?

   Very likely____Possible____Very Unlikely____

2. If you have indicated that it is possible for your plan to consider accepting members of any or all of these groups in your current coverage options, to what extent would an enrollment ceiling be necessary? (Please check the approximate level or indicate the expected ceiling).

   (a) No limit necessary _____

   (b) Not over 500 individuals _____

   (c) Not over 1000 individuals _____

(d) Not over 2000

(e) Other limitations

II. COVERAGE AVAILABILITY

1. The attached sheet describes the current coverage limits offered to the retired and dependent populations of Navy personnel through the intermediary CHAMPUS. Speaking in terms of that coverage option offered by your plan, which is, in your opintion, most similar to the coverage offered by CHAMPUS, indicate whether this particular option is:

(a) Substantially higher in coverage limits to that offered by CHAMPUS. _____

(b) Slightly higher in coverage limits to that offered by CHAMPUS. _____

(c) Basically similar to coverage limits offered by CHAMPUS _____

(d) Slightly lower in coverage limits than that offered by CHAMPUS. _____

(e) Substantially lower in coverage limits than that offered by CHAMPUS _____

2. If you have indicated that your plan's coverage option which is most similar in coverage limits to CHAMPUS is substantially different (either higher or lower) than that offered by CHAMPUS, please itemize those areas which, in your opinion, are of major differences.

_____

_____

_____

_____

_____

_____

_____

3. If you have indicated that your plan's coverage option which is most similar to the CHAMPUS coverage is substantially different from CHAMPUS, what in your opinion is the likelihood that your organization would be willing to negotiate coverage which is basically similar to CHAMPUS?

   (a) Very likely_____ Possible_____ Very Unlikely_____

   (b) What problems would negotiating such coverage present for your organization?

_____

_____

_____

_____

_____

_____

4. Several plans are now members of transfer agreements with other plans throughout the country. The basic transfer agreement allows an individual moving to a new location to be assured of enrollment privileges within the plan at his new location. Also, some plans have reciprocity agreements with other plans. Reciprocity typically covers emergency care when away from home. If your plan does not now have such arrangements, what in your opinion is the likelihood that such an arrangement can be negotiated?

   (a) Transfer Options:

   Very likely_____ Possible_____ Very Unlikely_____

   (b) Reciprocity Option:

   Very likely_____ Possible_____ Very Unlikely_____

   (c) In your opinion, what problems would such arrangements pose for your plan?

_____

_____

_____

_____

III. COSTS

1. Speaking in terms of the option which you have identified above as being most similar in coverage to the coverage offered by CHAMPUS, please indicate for that option the current charges per enrollee:

   (a) For an individual in a group _____

   (b) For a head of household in a group _____

   (c) For a spouse in a group _____

   (d) For other group dependents _____

2. Also for this option, please indicate the co-payment and/or deductible features

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

3. Is your pricing policy based on community rating or experience rating?

   (a) Community rating _____

   (b) Experience rating _____

4. If you community rate, do you see any problems in admitting as members any of the three Navy beneficiary populations identified above?

   (a) Very likely _____ Possible _____ Very unlikely_____

   (b) Please indicate the major problems which in your opinion would confront your organization in admitting these groups.

_____

_____

_____

_____

_____

_____

5. If you experience rate, is it in your opinion likely that the characteristics of the Navy beneficiary populations would make it possible for any significant reduction in fees compared with your current fees for civilian groups?

   (a) Reductions very likely _____

   (b) Reductions possible _____

   (c) Reductions not very likely _____

6. If in your opinion, your organization would offer enrollment to the Navy populations at significantly different charges from your current charges, please indicate what you feel to be the most likely range for the difference factor?

   (a) Minus 50% of current charges _____

   (b) Minus 25% of current charges _____

   (c) No difference in current charges _____

   (d) Plus 25% _____

   (e) Plus 50% _____

   (f) Other factor _____

7. In the event that your plan is operating at capacity already, or that Navy beneficiaries were enrolled to the limits of your capacity, would your organization be interested in exploring or managing alternative delivery modes in other facilities but still under the health maintenance concept?

   (a) Very interested _____

   (b) Some interest _____

   (c) No interest _____

8. Earlier, you were asked to indicate whether your organization would be interested in negotiating a benefits package similar in coverage to that offered by CHAMPUS. If you indicated a willingness to do so, and if your plan does not now offer an option similar in coverage to CHAMPUS, it is anticipated that this coverage would require its own fee structure. Please indicate, with reference to the option and fees identified in question III.1 above, the most likely range of the fee differential for negotiating coverage similar to that offered. by CHAMPUS.

   (a) Minus 25% to minus 50% of current option fees _____

   (b) Zero to minus 25% _____

   (c) No change _____

   (d) Zero to plus 25% _____

   (e) Plus 25% to plus 50% _____

   (f) Other factor _____

IV. ARMED FORCES HEALTH MAINTENANCE PROJECT

Please endicate your organization's interest in offering facilities and/or experienced personnel, assuming satisfactory compensation, for a project to establish a pilot program offering health care under the HMO concept to Armed Forces personnel.

(a) Very interested _____

(b) Some interest _____

(c) No interest _____

Thank you very much for your time and cooperation.

CHAMPUS BENEFITS

The Civilian Health and Medical Program for uniformed Services (CHAMPUS) is the indemnity insurance program to pay for medical care received by some of the Department of Defense's beneficiaries in the civilian sector. Currently, it is limited exclusively to fee-for-service care, however enabling legislation has been passed by the House of Representatives and is pending in the Senate which would allow CHAMPUS to employ prepaid group practices to provide the required care.

The benefits available vary as to the beneficiary status. For the dependents of the active duty personnel for inpatient care the sponsor must pay the greater of $25.00 or $1.75 per day per incident. This is independent of whether this is maternity care, neuropsychiatric care, surgery or medical care. Outpatient care is subject to a $50.00 deductible per individual or a maximum of $100.00 per family with a coinsurance factor of 20% of the expenses in excess of the deductible. Prescription drugs are completely covered. There is no maximum annual or lifetime benefits for any of the above identified care. There are no special exclusions for psychiatric care nor for any pre-existing conditions. CHAMPUS will pay for convalescent care but specifically excludes domicilliary or custodial care.

For the retired personnel and their dependents the same benefits apply but at somewhat different costs. For inpatient care the sponsor must pay 25% of the cost, again with no special features attached for either maternity or neuropsychiatric care. Outpatient care is subject to the same deductibles as for the dependents of active duty, but the coinsurance rate is 25%. Again there is no maximum benefit level.

Generally CHAMPUS is willing to pay for any service which can be classified as good medical care as opposed to many of the civilian indemnity insurance programs which require that the care be necessary.

3.0 RESPONSE TO MAILING

The overall response to the questionnaire was quite remarkable. Nearly 50 percent of the questionnaires were returned. Of the questionnaires which were returned, approximately half, or 25 percent of the total sample, were confirmed as fixed price prepaid health care organizations which were willing to enroll Navy beneficiary populations. Figure 2 below summarizes the overall responses. Plans were grouped according to their distance from Navy Medical Facilities into one of four groups (under 10 miles, 10-30 miles, 30-50 miles, over 50 miles from NMF's). Surprisingly, distance from a Navy Medical Facility does not appear to have effected the response rate. As indicated in Figure A-3, the rate of response appears fairly uniform over all the proximity groups.

Figure A-4 shows the distribution of the responses by state. No clear pattern emerges from the figure with the possible exception that the percentage of willing and qualified plans responding in the state seems to be generally over 50 percent for the coastal states (California accepted), and generally under 50 percent for the remainder of the country. Figure A-5 shows by state the responsive questionnaires which were within 50 miles of Navy Medical Facilities. Over half of the highest proximity plans are in California.

FIGURE A-2

SUMMARY OF QUESTIONNAIRE RESPONSES

	Number of Plans
Willing and qualified* to accept Navy beneficiaries on fixed price pre-payment basis	103
Willing but not yet operational	12
Operations ceased	57
Not qualified as a fixed price prepaid health plan	24
SUBTOTAL: Returned Questionnaires	196
Unreturned questionnaires	201
Questionnaires returned undelivered	17
TOTAL: All questionnaires	414

* "Qualified" here indicated offering comprehensive health care coverage on a fixed price prepayment basis; full consistency with Federal or Congressional definitions of HMO's is neither implied nor intended.

FIGURE A-3

NUMBER OF RESPONSES BY PROXIMITY TO NAVY MEDICAL FACILITIES*

	Distance from Navy Medical Facilities			
	<10 Miles	10-30 Miles	30-50 Miles	>50 Miles
Willing & Qualified	45	11	15	31
Willing, Not Operational	1	-	3	2
Operations Ceased	21	7	11	28
Not Qualified	14	8	1	6
ALL RETURNEES	81	26	30	67
Unreturned	117	37	29	49
Undelivered	9	-	1	5
TOTAL	207	63	60	121

* Sums by row will exceed totals reported in Table 1 since plans may be counted more than once if located at different distances from two or more NMF's.

Figure A-4

QUESTIONNAIRE RESPONSES BY STATE

	Returned	Not	NON QUALIFIED			Willing and	
	Undelivered ND	Returned	Not HMO	Not Yet Operational	Operations Ceased	Qualified	TOTAL
UNITED STATES							
Alabama		1			1		2
Alaska		1					1
Arizona		4	1			3	8
Arkansas		1					1
California	12	79	6	2	12	29	140
Colorado		4	1		2	2	9
Connecticut		6			1		7
Delaware							
Dist. of Columbia		2			1	3	6
Florida	1	2			1	3	7
Georgia					1		1
Hawaii		3	1			5	9
Idaho							
Illinois		8	2	1	2	4	17
Indiana		2	1			1	4
Iowa		1				1	2
Kansas			1	1		1	3
Kentucky		2	1		1	3	7
Louisiana					1	1	2
Maine		2				1	3
Maryland		8	1		1	2	12
Massachusetts		1			1	3	5
Michigan		3		1	1	4	9
Minnesota		6	1		3	4	14
Mississippi		2		1			3
Missouri		4			1	4	9
Montana							
Nebraska		2		1			3
Nevada		1				1	2
New Hampshire					1	1	2
New Jersey	1	1			2	4	8
New Mexico		2				1	3
New York	1	8	3	2	5	3	22
North Carolina		4			2		6
North Dakota	1				1		2
Ohio		2		1	3	3	9
Oklahoma		1			1		2
Oregon		2				3	5
Pennsylvania	1	10	2		1	2	16
Phode Island		1	1			2	4
South Carolina		2				1	3
South Dakota							
Tennessee		2	1	1			4
Texas		2	1		2	1	6
Utah		2			2	1	5
Vernmont					1		1
Virginia		1		1	2		4
Washington		3				3	6
West Virginia		5			3	1	9
Wisconsin		6			1	2	9
Wyoming		2					2
Totals	11	201	24	12	57	103	414

FIGURE A-5

RESPONSIVE PLANS BY STATE AND PROXIMITY TO NMF's

	Distance from Navy Medical Facilities		
	<10 Miles	10-30 Miles	30-50 Miles
California	26	8	9
District of Columbia		3	
Illinois	2		
Indiana			1
Maine			1
Maryland	4		
Massachusetts	2		2
New Hampshire			1
New Jersey	3		
New York	2		
Pennsylvania	1		
Rhode Island	2		
South Carolina			1
Washington	3		
TOTAL	45	11	15

4.0 ANALYSIS OF RESPONSIVE QUESTIONNAIRES

Questionnaires from plans indicating they were willing and capable of providing prepaid health care to Navy Beneficiary populations are analyzed in this section. Appendix Exhibit 2 contains the final tabulation of responsive questionnaires received from HMO's. All questions tabulated in Exhibit 2 correspond to the format of the questionnaire shown in Exhibit 1 above with the exception of the enrollment fee questions, which many respondents answered in a different format from that provided on the questionnaire. Questionnaires were tabulated in four groups: plans located within 30 miles of Naval Medical Facilities, plans located from 30-50 miles of an NMF, plans located in the same state as an NMF but over 50 miles, and all plans. Since a given plan may be within 30 miles of one NMF and from 30 to 50 miles of another, there may be some double counting between the first two groups. Therefore the total will not equal the sum of the rows.

4.1 Enrollment Policy

In general all responding plans indicated they were receptive to the idea of enrolling Naval beneficiaries. The acceptability of dependents was considered only possible or unlikely by about 18 percent of the plans, while the acceptability of retired populations was considered only possible or unlikely by about 32 percent of the plans. A somewhat lower proportion of plans questioned the acceptability of active duty personnel (27 percent). The vast majority of plans (70.6 percent) reported no necessary enrollment ceiling, and of those reporting a ceiling proportionately fewer were found in the high proximity groups.

4.2 Coverage

Relatively few of the plans, (16.7 percent) reported coverage slightly or substantially lower than CHAMPUS. There does not appear to be any substantial variation in this pattern by proximity group.

A minimum of 50 percent of the plans in each group reported coverage which was substantially higher than CHAMPUS, although the figure was 53.3 percent for plans more distant from Navy Medical Facilities. Plans were, in general, more non-committal concerning willingness to negotiate coverage similar to CHAMPUS. Although not shown in the tabulation, the distribution of "likely" responses is higher in plans with lower coverage. The plans were slightly less equivocal on the questions of transfer of reciprocity. Only four percent reported that negotiability of transfer options was unlikely and only two percent reported negotiability of reciprocity was unlikely. Fifty percent of the plans reported that these were likely options, and the rate was higher (over 60 percent) for plans nearest the Naval Medical Facilities.

4.3 Current Enrollment Charges

Because relatively few of the plans answered the question concerning current charges in the format requested, no tabulation has been provided for this question. Instead, Figures A-6 to A-8 below shows a summary of reported prices. Most plans (80 percent) reported that they followed a community rating policy in establishing charges for groups. An exception appears in the nearest proximity group, where as many as one-third of the plans reported experience rating. Of the community raters, more than one-half reported the possibility of problems in admitting Navy beneficiaries. Of the experience raters, relatively few (seven plans overall) reported that Navy beneficiary populations would be likely to qualify for reduced fees.

4.4 Negotiability of Charges for Coverage Similar to CHAMPUS

Several plans preferred not to answer the question concerning the possibility of altering charges for Navy beneficiary groups, but of those that did, no more than three in the highest proximity group reported that charges could be lowered for Navy groups. Of plans reporting coverage substantially higher than CHAMPUS, most reported

a 25 percent fee reduction would be possible if a package similar to CHAMPUS were negotiated. Of those reporting coverage lower than CHAMPUS most reported that the required increase would range up to 25 percent.

FIGURE A-6

SURVEY OF COSTS - WITHIN 50 MILES OF NMF

Individual

$19/mo and less	-	11	26.2%
$20/mo - $25/mo	-	24	57.1%
$26/mo and more	-	7	16.7%

Family

$49/mo and less	-	6	14.3%
$50/mo - $59/mo	-	10	23.8%
$60/mo - $69/mo	-	16	38.1%
$70/mo and more	-	10	23.8%

Husband and Wife

$30/mo - $39/mo	-	3	18.8%
$40/mo - $49/mo	-	9	56.2%
$50/mo and more	-	4	25.0%

Those replying to Cost Section of Questionnaire.

FIGURE A-7

SURVEY OF COSTS - OVER 50 MILES FROM NMF

Individual

$19/mo and less	-	5	31.3%
$20/mo - $25/mo	-	8	50.0%
$26/mo and more	-	3	18.7%

Family

$49/mo and less	-	1	7.7%
$50/mo - $59/mo	-	5	38.5%
$60/mo - $69/mo	-	6	46.1%
$70/mo and more	-	1	7.7%

Husband and Wife

$30/mo - $39/mo	-	2	22.2%
$40/mo - $49/mo	-	6	66.7%
$50/mo and more	-	1	11.1%

FIGURE A-8

SURVEY OF TOTAL COSTS - NMF

Individual

$19/mo and less	-	16	27.6%
$20/mo - $25/mo	-	32	55.2%
$26/mo and more	-	10	17.2%

Family

$49/mo and less	-	7	12.7%
$50/mo - $59/mo	-	15	27.3%
$60/mo - $69/mo	-	22	40.0%
$70/mo and more	-	11	20.0%

Husband and Wife

$30/mo - $39/mo	-	5	20.0%
$40/mo - $49/mo	-	15	60.0%
$50/mo and over	-	5	20.0%

APPENDIX EXHIBIT 2

TABULATIONS OF RESPONSIVE QUESTIONNAIRE

TAB OF QUESTIONS
REGION TOTAL

Section I - Enrollment Policy Question

1. Plan could extend to following Navy beneficiaries:	Proximity 1 - < 30 mi						Proximity 2 - 30-50 mi						Proximity 3 - > 50 mi						Proximity 4 - TOTAL					
	Likely		Possible		Unlikely		Likely		Possible		Unlikely		Likely		Possible		Unlikely		Likely		Possible		Unlikely	
	abs	%	abs	%	abs	%	abs	%	abs	%	abs	%	abs	%	abs	%	abs	%	abs	%	abs	%	abs	%
a. Active Duty	26	76.5	7	20.6	1	2.9	15	100	—				38	63.3	17	28.3	5	8.3	73	71.6	23	21.7	6	5.7
b. Retired	24	70.6	8	23.5	2	5.9	15	93.8	1	6.2			40	62.5	20	31.3	4	6.3	69	65.1	28	26.4	6	5.7
c. Dependents	28	82.4	6	17.6	—		16	100	—				48	75.0	14	21.9	2	3.1	82	77.4	17	16.0	2	1.9

2. Necessary enrollment ceiling	abs	%	abs	%	abs	%	abs	%
a. No limit	24	93.8	14	82.4	42	68.9	72	70.6
b. < 500	1	3.1	1	5.9	3	4.9	5	4.9
c. < 1000	1	3.1	0	—	7	11.5	6	5.9
d. < 2000	2	6.2	0	—	6	9.8	8	7.8
e. Other limits	4	12.5	2	11.8	3	4.9	8	7.8

TAB OF QUESTIONS
REGION TOTAL

Section II - Coverage Availability

Question	Proximity 1 - < 30mi		Proximity 2 - 30-50mi		Proximity 3 - > 50mi		Proximity 4 - TOTAL	
1. Coverage compared to CHAMPUS is:								
	abs.	%	abs	%	abs	%	abs	%
a. Substantially higher	15	50.0	7	50.0	32	53.3	49	51.0
b. Slightly higher	6	20.0	4	28.6	9	15.0	19	19.8
c. Basically similar	4	13.3	-		8	13.3	12	12.5
d. Slightly lower	3	10.0	3	21.4	7	11.7	11	11.5
e. Substantially lower	2	6.7	-		4	6.7	5	5.2

3. If coverage is substantially different, would you negotiate similar coverage?	Likely		Possible		Unlikely		Likely		Possible		Unlikely		Likely		Possible		Unlikely		Likely		Possible		Unlikely	
	abs	%	abs	%	abs	%	abs	%	abs	%	abs	%	abs	%	abs	%	abs	%	abs	%	abs	%	abs	%
	14	53.8	10	38.5	2	7.7	10	90.9	1	9.1	-		14	28.6	24	49.0	11	22.4	34	44.2	30	39.0	13	16.9

4. Transfer and Reciprocity can be negotiated:	Likely		Possible		Unlikely		Likely		Possible		Unlikely		Likely		Possible		Unlikely		Likely		Possible		Unlikely	
	abs	%	abs	%	abs	%	abs	%	abs	%	abs	%	abs	%	abs	%	abs	%	abs	%	abs	%	abs	%
a. Transfer	20	60.6	11	33.3	2	6.1	8	57.1	6	42.9	-		25	45.5	27	49.1	3	5.5	46	50.0	42	45.6	4	4.4
b. Reciprocity	21	63.6	10	30.3	2	6.1	8	61.5	5	38.5	-		25	46.3	28	51.9	1	1.9	48	52.2	41	44.6	2	2.2

TAB OF QUESTIONS
REGION TOTAL

Section III. Costs

Question	Proximity 1 - < 30 mi.										Proximity 2 - 30-50 mi.									
	<15		15-20		20-25		25-30		>30		<15		15-20		20-25		25-30		>30	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
1. Current charges per enrollee: a. Individual in a group																				
b. Head of household in group																				
c. Spouse in group																				
d. Other group dependents																				
3. Pricing policy base	Comm. Rating				Exp. Rating						Comm. Rating				Exp. Rating					
	abs		%		abs		%				abs		%		abs		%			
	22		66.7		11		33.3				15		93.8		1		6.3			
4. If you Comm. Rate, any problem in admitting Navy beneficiaries?	Likely			Possible			Unlikely				Likely			Possible			Unlikely			
	abs		%	abs		%	abs		%		abs		%	abs		%	abs		%	
	5		20.8	6		25.0	13		54.2		1		6.3	6		37.5	9		56.3	
5. If you Experience Rate, is it possible to reduce fees?	Likely			Possible			Unlikely				Likely			Possible			Unlikely			
	abs		%	abs		%	abs		%		abs		%	abs		%	abs		%	
	3		15.0	9		45.0	8		40.0		4		57.1	2		28.6	1		14.3	
6. Can current charge be changed for Navy personnel																				
	abs			%							abs			%						
a. Minus 50%																				
b. Minus 25%	3			75							1			25						
c. No difference	14			22.6							7			11.3						
d. Plus 25%																				
e. Plus 50%																				

Question	Proximity 3 - > 50 mi.										Proximity 4 - TOTAL									
	<15		15-20		20-25		25-30		>30		<15		15-20		20-25		25-30		>30	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
1. Current charges per enrollee: a. Individual in a group																				
b. Head of household in group																				
c. Spouse in group																				
d. Other group dependents																				
3. Pricing policy base	Comm. Rating				Exp. Rating						Comm. Rating				Exp. Rating					
	abs		%		abs		%				abs		%		abs		%			
	51		87.9		7		12.1				80		82.5		17		17.5			
4. If you Comm. Rate, any problem in admitting Navy beneficiaries?	Likely			Possible			Unlikely				Likely			Possible			Unlikely			
	abs		%	abs		%	abs		%		abs		%	abs		%	abs		%	
	4		7.0	17		31.5	31		57.4		10			27			46			
5. If you Experience Rate, is it possible to reduce fees?	Likely			Possible			Unlikely				Likely			Possible			Unlikely			
	abs		%	abs		%	abs		%		abs		%	abs		%	abs		%	
	6		18.8	9		28.1	17		53.1		7			18			27			
6. Can current charge be changed for Navy personnel																				
	abs			%							abs			%						
a. Minus 50%																				
b. Minus 25%											3									
c. No difference	41			66.1							56									
d. Plus 25%	1										1									
e. Plus 50%																				

TAB OF QUESTIONS
REGION TOTAL

Section III - Costs

Question	Proximity 1- < 30 mi.						Proximity 2- 30-50 mi.						Proximity 3- >50 mi.						Proximity 4- TOTAL					
	Yes		Maybe		No		Yes		Maybe		No		Yes		Maybe		No		Yes		Maybe		No	
	abs	%	abs	%	abs	%	abs	%	abs	%	abs	%	abs	%	abs	%	abs	%	abs	%	abs	%	abs	%
7. Interested in alternate delivery mode in other facility?	22	68.8	7	21.9	3	9.4	7	5.8	2	16.7	3	25.0	24	51.1	16	34.0	7	14.9	45		25		12	
8. If CHAMPUS-like pkg. were negotiated, what change would occur to current option fees?																								
	abs	%					abs	%					abs	%					abs	%				
a. -25% to -50%	1	100																	1	1.8				
b. 0 to -25%	7	33.3					2	9.5					12	57.1					19	35.8				
c. no change	9	69.2					4	30.8					-						15	28.3				
d. 0 to +25%	8	47.1					2	11.8					7	41.2					13	24.5				
e. +25% to +50%													1	100.0					1	1.9				
f. other factor							3	60.0					2	40.0					4	7.5				

TAB OF QUESTIONS
REGION TOTAL

Section IV - Armed Forces Health Maintenance Project

Question	Proximity 1 - <30 mi		Proximity 2 - 30-50 mi		Proximity 3 - >50 mi		Proximity 4 - TOTAL	
1. Pilot program could be established under HMO concept to Armed Forces personnel.								
a. Very Interested	abs	%	abs	%	abs	%	abs	%
	25	31.6	10	12.7	44	55.7	53	
b. Some Interest	abs	%	abs	%	abs	%	abs	%
	4	26.7	3	20.0	8	53.3	11	
c. No Interest	abs	%	abs	%	abs	%	abs	%
	1	11.1	3	33.3	5	55.6	7	

5.0 ESTIMATION OF POTENTIAL HMO ENROLLMENTS AND COSTS FOR NON-ACTIVE DUTY PERSONNEL

5.1 Identification of Navy Medical Facilities with Responsive HMO Plans Nearby

Each Navy Medical Facility in the United States (Naval Regional Medical Centers, Dispensaries with Authorized Operating Beds, and Regional Medical Clinics and Naval Dispensaries) listed in the NAVMED publication "Statistics of Navy Medicine" was examined in order to identify those with responsive HMO plans located within 30 miles. The 30 mile limit was chosen since it is presently the CHAMPUS limit for non-availability statements. Where no HMO was located within 30 miles, the nearest NMO in the same state was identified as a source of "residual capacity" mentioned above. Due to regionalization, some dispensaries are now reported with the corresponding regional medical centers. In order to retain as much detail in geographical distribution as possible, percentages from the second quarter of FY1973 were used to distribute regional totals over the component hospitals and dispensaries where this was necessary. Figure A-11 contains a list of the NMF's with HMO's nearby.

5.2 Estimations of Naval Beneficiary Populations

Reported utilization data were used as the basis for estimating beneficiary populations. Figures for the last quarter of FY1973 and the first three quarters of FY1974 were recorded for each base. For Naval hospitals, inpatient utilization data were used (average daily patient loads reported in Table B2, "Statistics of Navy Medicine", each quarter for Navy and Marine Corps personnel by beneficiary type). For all other facilities, outpatient visits (reported in Table C2, "Statistics of Navy Medicine" for the relevant populations) were used. Total populations were calculated by dividing total reported utilization for the facility by the appropriate FY1973 utilization rates for

Naval Medical Facilities. This procedure was based on the simple identity:

$$U = P \times (u/1000)$$

where U = utilization
P = population
u/1000 = utilization rate per thousand.

Based on this identity, it is clear that when utilization data and utilization rates are both known the population may be estimated by $P = U \div (u/1000)$.

Figure A-9 contains the inpatient utilization data which were used to calculate utilization rates. Column (1) shows total average daily patient load for each beneficiary group for FY1973, as reported in the Navy Medical Care Study Phase II Report "Planning and Programming" (Waggoner and McCarty, August 1974, Tables 2.1-2.4, pages 12-16). Column (2) shows the average daily patient load net of CHAMPUS utilization for the same source. Column (3) shows population from the same source. Column (4) indicates derived utilization rates based on columns (2) and (4), utilization in Government Medical Facilities by the respective populations. Column (5) indicates utilization in Government Medical Facilities as a percentage of total utilization data. Figure A-10 is exactly analogous to Figure A-9 with the exception that A-10 relates to outpatient utilization data.

5.3 Estimating Potential Enrollments

For each Naval Medical Facility, a worksheet was prepared showing the population estimates by beneficiary group, and the identity of HMO plans located nearby. For each HMO, reported enrollment availability, net of all constraints on beneficiary population acceptability, was entered in the appropriate worksheets. Where HMO's were located near more than one Naval Medical Facility, care was taken not to overallocate the reported capacity of the HMO. Using this procedure, an

Figure A-9

DERIVATION OF NMF UTILIZATION RATES - INPATIENT DATA

(Average Daily Patient Load)

1973	(1) Total ADPL	(2) Total ADPL In Navy -Gov't Facilities	(3) Population	(4) Col.(2) / Col.(3) x 1,000	(5) Col. 2 / Col. 1
Active Duty	-	5,271	776,322	6.79	-
A. D. Dependents	2,863	1,252	900,577	1.39	.44
Retired	1,182	842	296,440	2.84	.71
Ret. Dependents	2,040	715	533,592	1.34	.35

Source NMC II Report. Table 2.1 - 2.1. pp. 12-16

Figure A-10

OUTPATIENT DATA

1973	Total Outpatient Visits	Total Outpatient Visits - Navy Gov't Facilities Only	Population	Col. (2) / Col. (3)	Col. (2) / Col. (1)
Active Duty		3,266,385	766,322	4.21	
A.D.Dependents	4,304,810	3,918,640	900,577	4.35	.91
Retired	954,110	839,135	296,440	2,83	.88
Re. Dependents	1,603,445	1,197,930	533,592	2.24	.75

estimate of the non-active duty population which could be enrolled in Health Maintenance Organizations was made. In the event that non-active duty populations did not exhaust the available enrollments, active duty personnel were also allocated to the enrollments again subject to expressed constraints of HMO's on enrolling this specific group. While the main thrust of the study was to analyze the feasibility of enrolling non-active duty personnel in Health Maintenance Organization, it was virtually costless to make note of the active duty availability as well. It was felt that this information would have value in the event that any given Navy facility were not constrained by its military preparedness mission to serve all active duty personnel at that facility.

Figure A-11 shows the results of the potential enrollment estimates. Enrollments for each facility at plans within 30 miles of that facility and over 30 miles from the facility are shown. In all, the analysis suggests that approximately 413,000 non-active duty personnel could be enrolled in Health Maintenance Organizations presently located within 30 miles of Navy Medical Facilities. An additional 190,000 could be enrolled in more distant facilities.

5.4 Cost Estimation

The enrollment costs for each plan were taken from the returned questionnaire data. An assumed enrollment of three family members was used to calculate an average family member charge. The procedure was as follows:

(1) Where feasible enrollments associated with an NMF depended on more than one HMO, the raw three family member enrollment cost rate for that HMO was tabulated.

(2) The raw cost rates were adjusted where applicable for (a) CHAMPUS similarity and (b) Navy beneficiary premiums:

   (a) If coverage reported by the HMO was greater than or less than CHAMPUS coverage and similar to CHAMPUS was negotiable, an adjustment was made by lowering or raising the HMO rate according to the limit of the range reported by that HMO (i.e., ± 25% or ± 50%).

(b) If the HMO reported that a certain beneficiary group would qualify for a cost break, or would require higher premiums, the rates were adjusted accordingly for that beneficiary group.

(3) Adjusted rates for all HMO's associated with an NMF were then ranked according to cost.

(4) Feasible enrollments for the NMF were then allocated to HMO's by beneficiary group on the basis of least cost enrollment first. (For example, where a plan offered reductions for all groups except retired populations, the retired were allocated last to this plan.)

(5) The resulting enrollment costs were then summed by NMF.

(6) Where HMO's had not reported costs, the average costs resulting from step (5) at those HMO's which did report costs were used and applied to remaining HMO enrollments.

(7) The costs by NMF were then summed over all NMF's.

Figure A-12 shows average and total enrollment costs by NMF and total enrollment costs for all NMF's. On the basis of these data, the weighted average enrollment cost comes to $234.00 per individual in 1974. The range of 1974 enrollment costs for the population estimates contained in Table 5.3 is $96.0 million to $141.0 million.

5.5 Potential Workload and Physician Reduction Estimation

The estimate of potential physician reductions at NMF's from off-loading non-active duty populations to HMO's is obtained in three steps. The first step is to calculate the inpatient and outpatient workloads at NMF's which accounted for the potential enrollees; the second step is to estimate physician productivity in terms of inpatients and outpatients; the third step is to divide the estimated potential workload reductions by physician productivity. Step three produces an estimate of potential physician reductions at NMF's.

Step 1. Potential Workload Reductions

The estimated enrollment potentials (419,777 for enrollment in HMO's within 30 miles of NMF's; 189,549 for enrollment in more distant HMO's) are total population estimates. That is, these populations

Figure A- 12

NMF	Average Annual Enrollment Costs* Per Individual <30 Miles	Per Individual >30 Miles	Average Annual Enrollment Costs All Non-ADU Enrollees <30 Miles	All Non-ADU Enrollees >30 Miles ($1,000)
Annapolis, Md.	224		1,544	
Beaufort, S. C.		240		4,429
Bethesda, Md.	224		13,336	
Boston, MA	292		6,855	
Bremerton, WA	199		4,477	
Camp Pendleton,CA		288		3,762
Charleston, S.C.		238		476
Corpus Christi TX		299		2,053
Great Lakes, Ill	260		9,961	
Jacksonville, Fla		300		12,056
Key West, Fla		300		2,715
LeMoor, CA	288		1,926	
Long Beach, CA	180		5,945	
Newport, RI	252		1,008	
Oakland, CA	288		4,534	
Orlando, Fla		300		3,597
Patuxent R. Md		224		1,696
Pensacola, Fla		300		5,737
Philadelphia, PA	217		6,363	
Port Hueneme, CA		288		622
Portsmouth, NH		225		492
San Diego, CA	200		17,543	
St. Albans, NY		248		810
So. Weymouth MA	296		751	
Lakehurst, NJ	177		3,910	
Brunswick, ME		225		
Chase Field, TX		299		1,716
Dallas, TX		299		1,511
Crane, Ind.		189		283
Yuma, Az		295		1,887
Pt. Mugu, CA		288		267
Alameda, CA	288		752	
Moffet Field, CA	288		581	
Vallejo, CA	288		439	
Dist. of Columbia	297		11,460	
San Francisco CA	288		576	
Guam, MI	288		4,065	
Totals			$ 96,025	$ 45,013
	Average Per Individual		233	237
	Weighted Average		$234	

*Costs based on 1974 enrollment charges reported by plans adjusted for CHAMPUS comparability and Navy beneficiary group premium (See text).

utilize both NMF's and CHAMPUS. In order to estimate the workload reductions at NMF's which would result from enrollment of these individuals at HMO's, the appropriate utilization rates are the rates at which total populations visit NMF's. From Figures A-9 and A-10 weighted average utilization rates for non-active duty populations at NMF's were calculated:

Utilization by Non-ADU Populations at NMF's

Inpatient:	3.516 ADPL per 1,000 individuals
Outpatient:	3.965 outpatient visits per year per individual

Combining these utilization rates with the potential enrollment estimates, the following utilization estimates (potential reductions at NMF's) were calculated:

Estimated Workload Reductions at NMF's (Annual Rate)

	Within 30 Miles of NMF	Over 30 Miles from NMF
Inpatient bed days per year:		
3.516 x .365	x 419,777 = 538,717	x 189,549 = 243,256
Outpatient visits per year:		
3.965	x 419,777 = 1,664,416	x 189,549 = 751,562

Step 2. Physician Productivity Estimates

Ordinarily, physicians see both inpatients and outpatients. However, in order to calculate the effect of both inpatient and outpatient workload reductions on required physician manning levels, we need to know the number of inpatients the average physician could see if he were to see inpatients exclusively and, correspondingly, the number of outpatients if he were to see outpatients exclusively. Analysis of existing data indicate two possible approaches to this calculation and thus a range of productivity estimates.

First, based on composite work units per physician, it appears that on average full time a physician could produce either 23.5 outpatient visits or seven inpatient bed days per day. Alternatively, actual workload data in NMF's for the first two quarters of FY1973, indicate a productivity of 22.2 visits per day per outpatient specialist and an average daily load of 4.9 continuous care patients (convalescent patients are excluded). These somewhat lower productivity figures imply that enrollments in HMO's would release a larger number of medical officers as indicated below.

Step 3. Estimated Potential Physician Reductions

The potential physician reductions are clearly sensitive to the assumptions concerning productivity. Therefore a range of reductions is generated which allows for the variability in productivity estimates. Estimates are derived by dividing workload reduction estimates from Step 1 by productivity estimates from Step 2.

Low Range Estimate of Physician Reductions
from Potential HMO Enrollments

	Within 30 Miles of HMO	Over 30 Miles of NMF
Reductions due to Inpatient Load	211	95
Reductions due to Outpatient Load	194	85
Total Reductions	405	180

High Range Estimates of Physician Reductions

Reductions due to Inpatient Load	301	136
Reductions due to Outpatient Load	205	90
Total Reductions	506	226

To summarize, potential enrollments of non-active duty beneficiaries at HMO's within 30 miles of NMF's (whether these beneficiaries are currently using NMF's or not) would permit reductions in Navy physician requirements of between 405 and 506. If the utilization of Navy facilities by these potential enrollees were at higher than the average rates used for these calculations, the potential reductions would be correspondingly larger (or the same reduction could be achieved at lower cost). The physician reductions implied when potential enrollments at HMO's over 30 miles from NMF's are included are 585 to 732.

APPENDIX B

Impact of Coinsurance on the Welfare of Navy Beneficiaries

Throughout our study of medical care in the Navy there has been periodic discussion of coinsurance as a means of reducing the demands placed on the Navy Medical Care system by its beneficiaries. Principle focus of the discussion has been on the institution of a fee for outpatient care of non-active duty beneficiaries in Navy facilities equal to 25 percent of the average visit cost. At the present, this would amount to about $4.00 per outpatient visit. On the basis of empirical evidence from a number of sources (see Appendix C to our Navy Medical Care Study December, 1973), it is believed that this would reduce the demand for care by this portion of the beneficiary population by some 25 percent. This, combined with the fees collected, could reduce the Navy's expenditures on outpatient care for non-active duty personnel by 44 percent.

Objections to this proposal have been raised on several grounds, including statements that it would have no effect on utilization, and that any savings would be largely offset by the increased administrative costs associated with collecting the fee. The most telling argument however, has been that a coinsurance fee would work a real hardship on Navy families. The fee, when paid, would reduce their real incomes, while any decrease in demand would be achieved primarily because the fee would deter beneficiaries from obtaining vital health care. As a result there would be a substantial impact on the welfare and morale of Navy personnel, particularly the enlisted, and significant reductions in retention.

If there were to be a substantial impact on morale and retention, it is clear that the reservations regarding the institution of a coinsurance fee are quite serious. The real question, therefore, is the severity of the potential hardships. In FY1973, dependents of active duty personnel using Navy Medical facilities or CHAMPUS saw a physician an average of 6.3 times per year per person. About 90 percent of these visits were at Navy facilities. Retirees and the dependents of the retirees and deceased had

substantially lower utilization rates, 3.27 and 2.22 outpatient visits per year respectively, primarily because many do not live near Navy facilities. Thus, 6.3 visits per year is probably the best estimate of the average utilization rate for those who depended on Navy facilities as their primary source of medical care. These figures imply that the average annual cost of coinsurance per non-active duty person using Navy facilities would be about $25 if there were no effect on demand, or about $75 per year per dependent family with two children. If the predicted effect on utilization were realized, these expenditures would be reduced to $19 per year and $57 per year respectively.

This is not to suggest, of course, that these relatively small amounts would be paid by every individual or family. In some cases, where a prolonged illness or chronic condition is involved, the annual bills could become substantial. The need to see a doctor weekly for a year, for example, could cost an individual over $200. Unusual situations of this nature could easily be handled, however, by means of a limit on the number of visits per illness or condition for which coinsurance would have to be paid, without seriously impairing its ability to limit demand.

The second potential source of hardship is the reduction of medical care to beneficiary populations due to the induced decrease in office visits. The argument is that Navy dependents would be effectively deprived of a valuable addition to their well-being by virtue of a 25 percent reduction in outpatient care. Certainly, this care is valuable in terms of what the Navy pays for it. There is a very real question, however, as to the value of this care to recipients and, therefore, of the extent of their loss.

At a zero price, the only deterrant to seeing a Navy doctor for treatment of a minor complaint is whether or not one has anything better to do with one's time and the transportation costs each way. This is precisely why it is predicted that a small fee would yield such a large reduction in demand. At $4.00 per visit, the question becomes whether or not one has

something better to do with one's time, the transportation costs and $4.00. Implicitly, therefore, the office visits foregone have a value to the beneficiary of the time involved, plus transpotation costs, plus some dollar amount between $0 and $4.00.

This last point is best explained by referring to the original demand curve analysis. By construction, the demand curve in Figure B-1, D-D, specifies the willingness of the individual to pay some dollar amount for an additional or marginal, office visit during the year. Each time the possibility of seeing a doctor arises, the individual is assumed to consider whether or not a visit is worth the time, transportation and fee. If it is worth more than the total cost, he will visit the doctor; if not, he will stay home. Thus, all visits to the left of Q_4 are visits having a value to the beneficiary of $4.00 or more above the cost of time and transportation. Visits between Q_4 and Q_0 have values to the individual of between $0 and $4.00 over time and transportation costs (on average, $2.00).

Furthermore, since the time and transportation expended on office visits can be put to other uses of roughly equal value to the individual, the net loss to the individual of not making an office visit to the right of Q_4 is only an average of $2.00. In effect, the resources saved by the Navy in not having to provide the care equivalent to such visits are worth roughly eight times as much as the value placed on them by beneficiaries.

Interestingly, many of the Navy's physicians are apparently aware of this discrepancy. In a recent study of Medical Officer career attitudes*, the Navy Personnel Research Laboratory found that one of the complaints of these officers was that beneficiaries frequently overuse Navy Medical facilities for minor or non-existent illnesses. The idea of a insurance fee to limit their overuse was overwhelmingly approved of.

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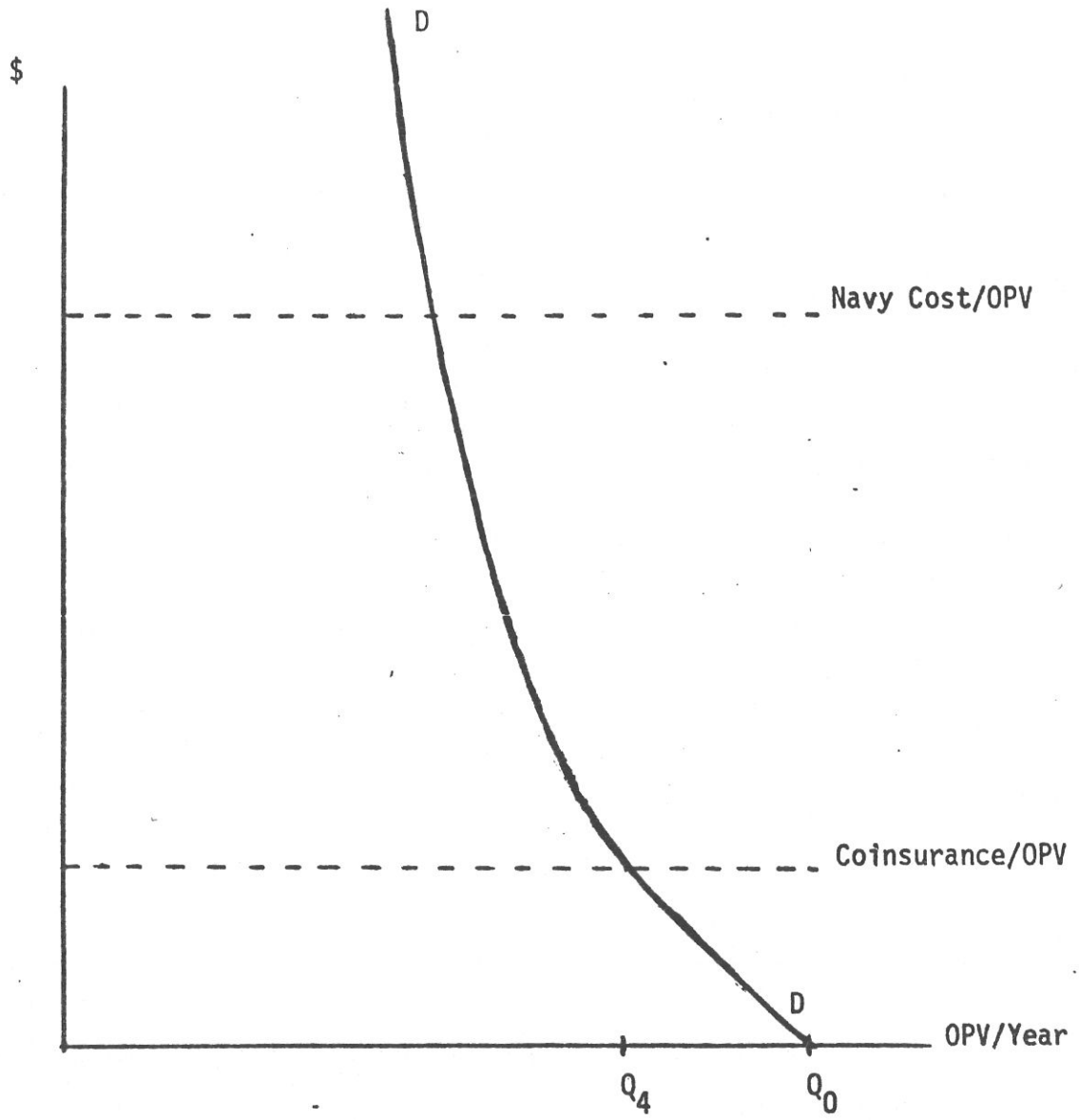
* Claude Braunstein, A Study of the Factors Indluencing Career Motivation Among Navy Physicians and Dentists, Navy Personnel Research and Development Center, TR74-17 (February, 1974).

Figure B - 1



One final point with respect to the equity of a coinsurance fee is perhaps especially relevant in light of this study. In the event of a substantial shortfall in Navy physician strength, an even larger number of people than at present may find themselves in the CHAMPUS program. These beneficiaries will be primarily retirees and their dependents. Institution of a coinsurance fee for use of Naval facilities at that time would undoubtedly be viewed as more equitable by active duty and retired families alike; furthermore, by reducing the workload, coinsurance would decrease the need for many beneficiaries to shift.